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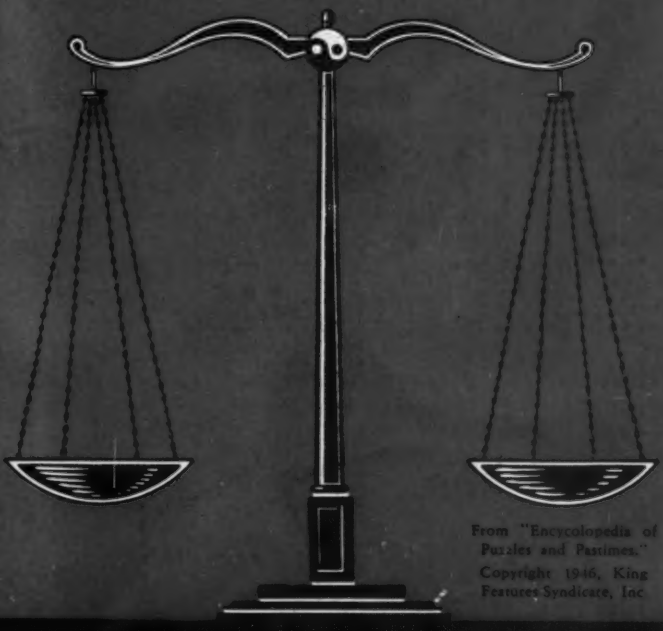
Paper TRADE JOURNAL

REG. U. S. PAT. OFF.

VOLUME 126, No. 12 MARCH 18, 1948

WEIGHT...
...PUZZLE

Take nine coins, all of equal dimensions and all of the same weight, except one. Find the one which weighs less, in only two weighings, using a pair of balance scales. . . . If you don't have nine coins of the same denomination or the scales handy, you can use your imagination. Lay one coin tails up to indicate that it weighs less than the others; then, use anything handy to represent the two sides of scale.



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If this puzzle solution
Is troubling you
See our adv. next month.

And if dryer felt problems
Are bothering you
See Asten-Hill at once.

ASTEN DRYER FELTS

ASTEN-HILL MFG. CO., PHILADELPHIA • ASTEN-HILL LTD., VALLEYFIELD, QUEBEC

LAST MONTH'S PUZZLE SOLUTION

STAR POINTS—The only way by which you can cover seven of the star's points is to cover on each successive move the point from which the previous penny was started. For example, if the first penny is moved from 8 to 5, the next move would be from 3 to 8. The remaining moves would then be as follows: 6 to 3, 1 to 6, 4 to 1, 7 to 4, and 2 to 7.

Over 200 Suction Felt Rolls

Used on Paper and Board Machines

Installations of Downingtown Suction Felt Rolls at various positions on Fourdrinier and Cylinder Machines show 20% to 100% increase in felt life, depending on the condition of the machine parts and the class of stock being handled. These rolls continuously keep the full width of the felt clean and open at all times. Photo below shows an installation on a fourdrinier making book.

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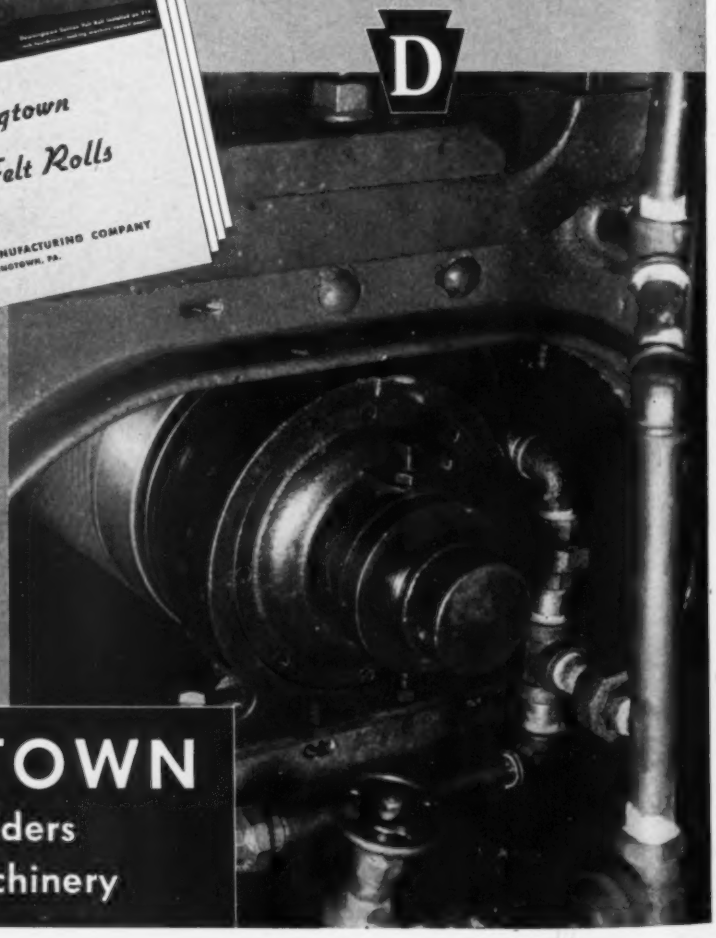

DOWNINGTOWN
Designers & Builders
Paper Making Machinery

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CALENDAR OF COMING EVENTS

March 22-24—National Association of Waste Material Dealers, Inc. Annual Convention, Boston, Mass.

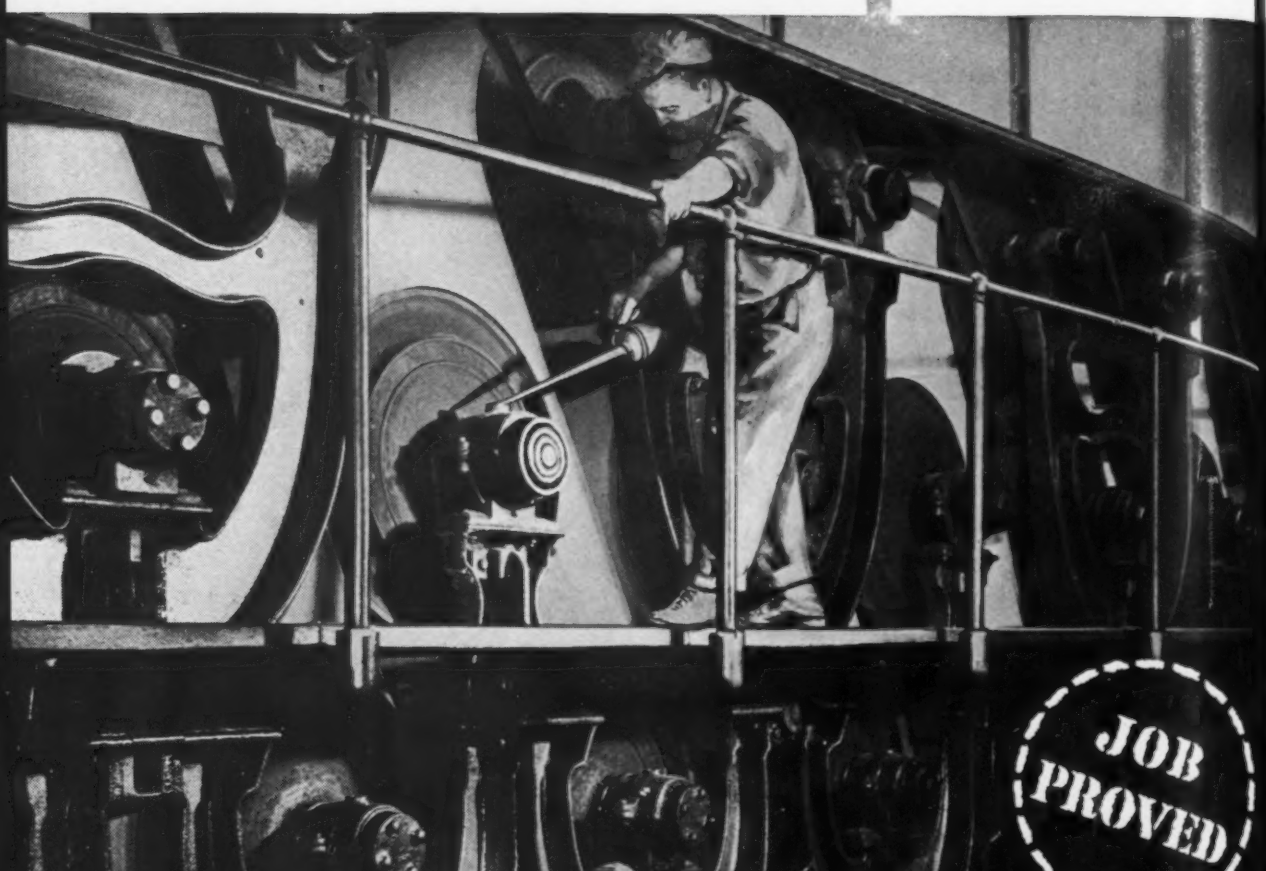
May 19, 20, 21, 1948—American Pulp and Paper Mill Superintendents Association, Annual Meeting, Roosevelt Hotel, New Orleans, La.

June 11-12, 1948—Paper & Twine Association, Annual Convention, French Lick Springs, Indiana.

April 5-7—National Paper Trade Association, Annual Convention, The Waldorf-Astoria, New York City.

May 9-12—National Paper Box Manufacturers Association, Annual Convention, Cincinnati, O.

Ends Chronic Bearing Trouble



SUN PAPER MILL LUBRICANT...

Eliminates Need for Frequent Dismantling

A big mill, making paperboard, was being slowed down by lubrication trouble on the drier rolls. Carbon accumulated regularly in the ring-oiled bearings, causing the rings to stick. As a result of improper lubrication, power consumption increased. The bearings had to be dismantled frequently. Meanwhile production stopped and maintenance costs piled up.

A Sun Engineer recommended a lubricant that had been "Job Proved" in dozens of paper mills. With this oil the trouble stopped and carbon practically disappeared.

A labor saving of about 500 man-hours per year, plus an annual saving of $320 on oil, has resulted, and more continuous production has been possible. This is a typical example of how Sun Paper Mill Lubricants keep production up and costs down.

For all types of paper-making machinery and other equipment, your Sun Engineer has "Job Proved" lubricants. For full information call your nearest Sun Office. Or write Department PT-3.

SUN OIL COMPANY · ***Philadelphia 3, Pa.***
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INDUSTRIAL PRODUCTS

Paper TRADE JOURNAL

VOLUME 126, NO. 12 REG. U.S. PAT. OFF. MARCH 18, 1948

Canadian Mills Raise Fine Paper Prices

TORONTO, Ont.—After what appears to have been very careful consideration, the remaining fine paper manufacturers in Canada have decided to follow the lead of Provincial Paper Company of a couple of weeks ago and raise the prices of their fine papers.

Rolland Paper Company prices on all but No. 1 and No. 2 all-rag papers have been increased $15 a ton, while E. B. Eddy Company has announced a general increase of $15 a ton, effective March 8. Howard Smith Paper Mills put its prices up on March 15.

Rolland Paper Company states that there will be no increase on its high-percentage rag content (50% to 75% rag) papers. Over-all it states, the percentage increase will be around 1 percent to 2 percent; on one grade of paper, selling for 30 cents a lb., it will be about ¼ of a cent.

An E. B. Eddy spokesman said that its price boosts will be around 4½ percent to 6 percent; approximately the same increase as announced previously by Provincial Paper, it is understood.

All companies say they are passing along the increase of $15 a ton in the price of wood pulp which has taken place so far this year. One company spokesman stated that even with the increase in paper prices, the manufacturer was absorbing some loss due to shrinkage in pulp processing.

Some observers have pointed out, however, that since all fine paper manufacturers are increasing prices, it would appear that an integrated paper mill which manufactures its own pulp, is no better off costwise than one which must purchase its pulp in the market. It is stated, however, that most integrated mills charge their pulp costs in at current or market prices, thus in effect treating pulp manufacture and paper manufacture as two separate operations from an accounting standpoint.

Casein January Output Sags

WASHINGTON — Dry casein production in January took an unseasonal drop from December levels to 750,000 pounds, 70 percent less than for January a year ago, and the third lowest production in 25 years, the Department of Agriculture reported last week.

Congress Opens Industry's Bids On Second Quarter Paper Needs

Waste Dealers Program Promises Big Convention

NEW YORK—Executive offices of the National Association of Waste Material Dealers, Inc., said this week that the Association's Thirty-Fifth Annual Convention to be held at the Hotel Statler, Boston, March 22 to 24 inclusive, will surpass many records established in the past.

The President's Party to be held on the evening of the same day in the Grand Ballroom of the Hotel Statler is expected to top anything of the kind heretofore put on by the Eastern Convention Committee. A large proportion of the Eastern members of the Association are acting as hosts for this party and registered members and their ladies will find this affair one of the bright spots of the convention.

On Wednesday evening, March 24, the thirty-fifth anniversary banquet will be held, coming on the exact anniversary date on which thirty-five years ago the Association held its organization meeting in Boston. One of the speakers at the banquet will be former Assistant Secretary of State Spruille Braden.

Newspaper Group Plans New 40,000 Ton Mill

LONGVIEW, Wash. — Construction is now under way on a newsprint plant which will have a capacity of 40,000 tons a year. Built and owned by a syndicate of newspapers, the plant will be operated under lease by the Pacific Paperboard Company plant in Longview which is adjacent to it. Cost of the project is estimated at $2,350,000.

Patrick J. Moore, of Moore & Company, consulting engineers, San Bernardino, Calif., is in charge of the construction work, with Conrad J. Kern of Philadelphia as chief consultant. E. E. Flood is president of the Paperboard company.

The buildings will include the main machine structure, which will measure 60 by 480 feet, a grinder and chest building, wood preparation building, and power plant.

WASHINGTON — Bids were received today by the Joint Congressional Committee on Printing for paper for the use of the Government Printing Office for a three months' period beginning April 1, 1948. Awards are to be published March 22. The bids were as follows — where no bid is shown, the Government's requirements were not met, but are printed for the record only.

Newsprint

No. 1—1,500,000 lbs., 24x36—64; rolls, 19, 24, 36, and 48 ins. wide (3-inch fiber cores).

Machine-Finish Book

No. 3—170,000 lbs., 25x38—70; flat, cut any size, min. 21 ins., max. 48 ins.

Paper Corp. of America	.169c
Mead Sales Co.	.1167c
Paper Corp. of U. S.	.129c

No. 4—425,000 lbs., 25x38—70; flat, cut 24x38, 28x38, 38x48 ins.

Paper Corp. of America	.169c
Mead Sales Co.	.1167c
Paper Corp. of U. S.	.129c

No. 5—425,000 lbs., 25x38—70; flat, cut 24x38, 28x38, and 38x48 ins.

Paper Corp. of America	.169c
Mead Sales Co.	.1167c
Paper Corp. of U. S.	.129c

No. 6—40,000 lbs., 25x38—70; rolls, 28½ ins. wide, (3-inch fiber cores).

Paper Corp. of America	.159c
Mead Sales Co.	.1083c
Mudge Paper Co. (Total tonnage Lots 6, 7 & 8, 200,00 pounds.)	.1082c
Paper Corp. of U. S.	.1171c

No. 7—140,000 lbs., 25x38—70; rolls, 19 and 38 ins. wide (3-inch fiber cores).

Paper Corp. of America	.159c
Mead Sales Co.	.1083c
Mudge Paper Co. (Total tonnage Lots 6, 7 & 8, 200,00 pounds.)	.1082c
Paper Corp. of U. S.	.1171c

No. 8—140,000 lbs., 25x38—70; rolls, 19 and 38 ins. wide (3-inch fiber cores).

Paper Corp. of America	.159c
Mead Sales Co.	.1083c
Mudge Paper Co. (Total tonnage Lots 6, 7 & 8, 200,00 pounds.)	.1082c
Paper Corp. of U. S.	.1171c

No. 9—200,000 lbs., 25x38—70; rolls, 24, 36, and 48 ins. wide (3-inch fiber cores).

Paper Corp. of America	.159c
Mead Sales Co.	.1083c
Paper Corp. of U. S.	.1171c

English-Finish Book

No. 10—150,000 lbs., 25x38—90; flat, cut any size, min. width 24 ins., max.

(Continued on page 24)

Aries Opens Office as Engineer Consultant

NEW YORK — Dr. Robert S. Aries, who for the past six years has been a consulting chemical engineer and director of the Northeastern Wood Utilization Council has opened a new engineering service. Dr. Aries who is also an adjunct professor of chemical engineering at the Polytechnic Institute of Brooklyn, declares that the new office will combine engineering and economics through the association of a group of experts in both fields.

The organization, to be known as R. S. Aries & Associates, Consulting Engineers and Economists, is designed to eliminate much of the current lag between technological advances and the marketing of new products.

According to Dr. Aries, there is a need for marketing research in the development of new products. New product development can be costly if the research and manufacturing skills of industry are not directed scientifically to the markets which present the greatest opportunity.

The new firm, which will open offices at 26 Court Street, Brooklyn, April 5, will service the chemical process industries on new product development, technical and economic surveys, market research, industry studies, plant and process evaluations and statistical analysis.

Associated with Dr. Aries will be specialists in the fields of pulp and paper manufacture, petroleum chemicals, resins and plastics, fermentation, synthetic organic chemicals, foods and amino acids, wood waste utilization and economics.

Dr. Aries has been associated as a consultant on new product development and engineering economics with such firms as Socony Vacuum Oil Co., Dictaphone Corporation, Sargent & Co., Pennsylvania Salt Manufacturing Co., Publicker Industries, Inc. and Winchester Arms Co. He will continue serving some of them and will also be the consulting technical director of the Northeastern Wood Utilization Council.

At the Polytechnic Institute, he presents a series of graduate courses on Pulp and Paper Technology, Chemical Engineering Economy, Chemical Engineering Administration, Economic Balance in Chemical Manufacture and Chemical Plant Location. He has authored more than sixty articles of a technical and economic nature on the chemical process industries.

Charles E. Mueller Joins Elof Hansson Inc.

NEW YORK—Charles E. Mueller, well known in the pulp and paper industry, has joined Elof Hansson, Inc., as assistant manager of the pulp department. Mr. Mueller was formerly associated with Bulkley Dunton Pulp Company, New York, where he was manager of the speciality products department and where he also worked on pulp sales. Prior to that connection he was with the Hercules Powder Company in both Wilmington, Del., and Kalamazoo, Mich., for many years and also with the Kalamazoo Vegetable Parchment Company of Kalamazoo.

Mr. Mueller holds a B. A. degree from Miami University in Oxford, Ohio, and a B.S.E. and M.S.E. in Chemical Engineering from the University of Michigan. He is a member of the American Institute of Chemical Engineers and of the Chemists Club.

H. Roy Crabtree Heads Woods-Dryden Bags

WINNIPEG—H. Roy Crabtree has been named president and director of the newly formed Woods-Dryden Paper Bags Limited. E. Lorne Goodall, vice-president, J. Buffie, general manager, R. B. Moffit, secretary-treasurer, and R. R. McLernon have also been elected directors.

Scheduled to commence operations on April 1st, the company will manufacture grocery bags, notion and millinery bags, shopping bags, duplex and triplex bags formerly produced separately by Woods Manufacturing Company Ltd., Winnipeg, and Dryden Paper Company Ltd., Dryden, Ont.

Factory and head office of the company will be in Winnipeg. Sales will be handled by Dryden Paper Sales Ltd. of which Gordon Bennett is vice-president.

Dr. Gates Transfers to Container Laboratories

NEW YORK—Dr. James E. Gates, formerly Assistant to the Director of the Containers Division of the War Production Board, and later consulting economist to the Container Corporation of America, has joined the consulting staff of Container Laboratories, Inc. According to E. A. Throckmorton, president of Container Laboratories, Inc., Dr. Gates will be of general assistance to the present research and consultation services offered clients among both package makers and package users. He also pointed out that Dr. Gates has made extensive economic studies of the complex packaging industries, and should be particularly helpful to those financially interested in package manufacturers and their future prospects.

George Carroll Goes to Newton Falls Mill

HOLYOKE, Mass.—George S. Carroll, former superintendent of the Riverside Division of the American Writing Paper Corporation, here, and now manager of the Hopper Paper Company, in Reading, Pa., has accepted a new post as general superintendent with the Newton Falls Paper Mills, Inc., Newton Falls, N.Y. Carroll assumes his new duties April 5.

Giegengack Resigns As Public Printer

WASHINGTON—When A. E. Giegengack, Public Printer of the United States, told a group of his officials on March 9 that President Truman had accepted his resignation to be effective March 15 he closed a public career distinguished for its accomplishments and for it length. Giegengack held the office for 13½ years, longer than any previous Public Printer.

Mr. Giegengack's letter of resignation to the President, which he presented in person at the White House, said, in part:

"It is with sincere regret that I have reached the decision to ask you to accept my resignation as Public Printer of the United States, effective March 15, 1948. I take this action because my duty to my family demands that I increase my income substantially above the salary fixed by Congress for the position under a law passed 20 years ago.

"It has been a privilege to serve our Government during the last 13½ years under Mr. Roosevelt and yourself, and I shall always recall with pleasure many happy associations and experiences. . . .

"The Government Printing Office is a great organization and is doing a real job for the taxpayer. I leave it with reluctance and with sincere thanks to you for the opportunity you have given me to be of service and for your cooperation and support. You have my best wishes for a continuance of your personal happiness and success. If at any time I may be of service to you in any way, please call upon me."

Mr. Truman talked affably with the Public Printer about his long term in office and asked him not to leave, but withdrew the request when Mr. Giegengack recounted his reasons for wishing to relinquish his post. In a letter the president alluded to the length of Mr. Giegengack's service. The letter read:

In view of the reasons outlined in your letter of March 9, I reluctantly accept your resignation as Public Printer, effective March 15, 1948.

You have held the position longer than any other Public Printer. I know that in the future you will be able to view with a great deal of personal satisfaction your career in the public service. From my own experience in the Senate as a Member of the Committee on Printing and as Chairman of the Special Committee to Investigate the National Defense Program, I am well aware of the confidence the members had in you as a loyal, efficient public servant who had the respect and support of the Committees and of the entire printing industry.

It is with deep regret that I see you leave the Government service. You

(Continued on page 20)

YOU NEED BIG, MODERN BIRD SCREENS

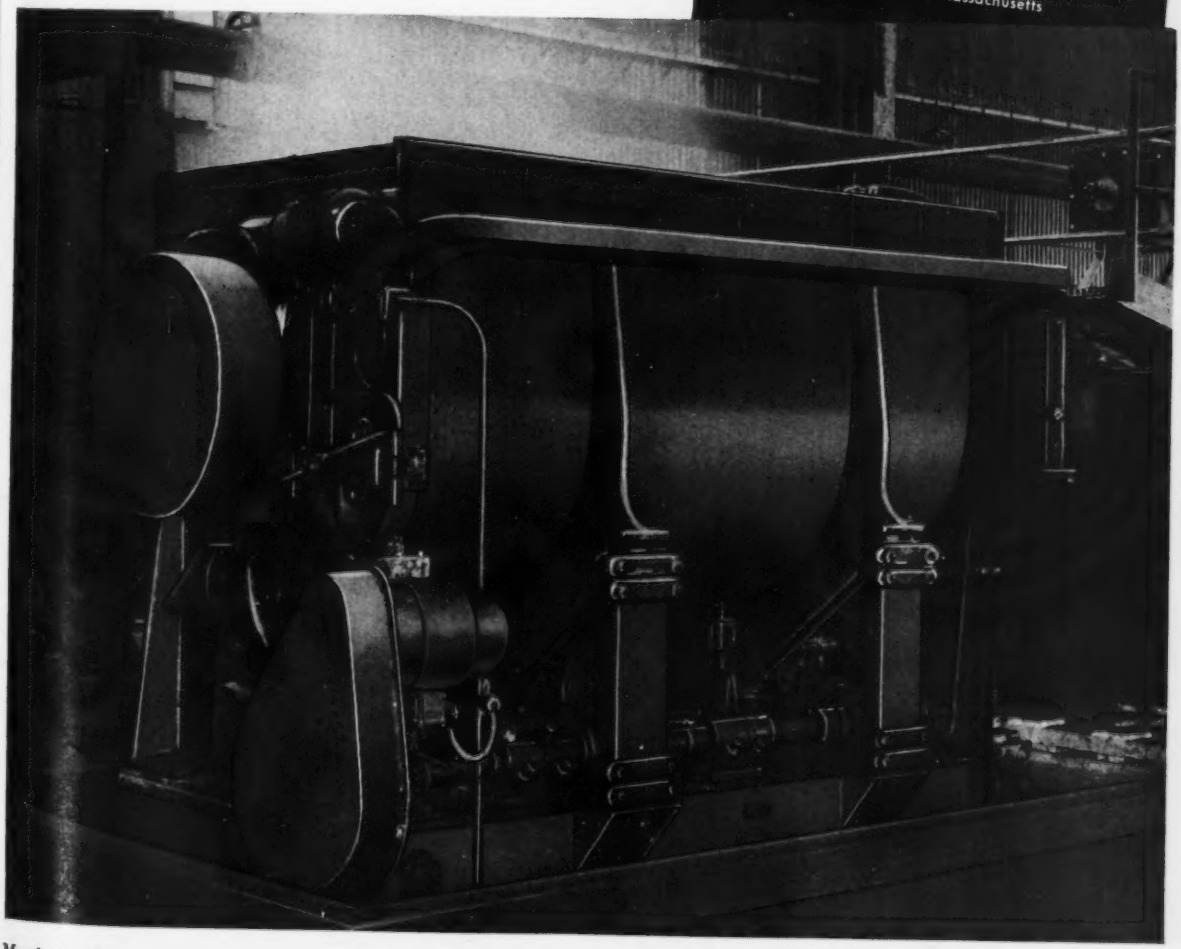
. . . to produce all of the uniformly good paper your paper machine is capable of making—at top speed without shutdowns.

. . . to assure good formation by delivering fibres to the machine that are straightened, combed out, thoroughly individualized.

. . . to deliver stock that is free of strings, lumps and slime—uniform in weight.

85% of all the paper made in North America passes through Bird screens

BIRD MACHINE COMPANY
South Walpole, Massachusetts



Flambeau to Increase Sulphite Capacity

PARK FALLS, Wis. — The Flambeau Paper Division of the Kansas City Star Company plans to expand its sulphite capacity to 100 tons by addition of equipment which is expected to go into operation about September 1. A chemipulp high pressure accumulator, additional sulphur-dioxide cooling capacity, and more pulp screens will be installed.

Additional digester capacity will be gained by installation of a chemipulp high pressure accumulator with all the necessary equipment, pumps, piping and controls. The 23′ x 34′ accumulator is being fabricated by A. O. Smith of Smith-clad stainless steel.

Pressure in the accumulator will be maintained with an automatic relief control and also the temperature and liquid level will be recorded. Liquid level recorders will be added to the present recording and controlling instruments on the digesters. All recording and controlling instruments will be furnished by Bristol.

A 2000 GPM Warren stainless steel acid pump will fill the digesters and circulate the acid during the first one-half hour of each cook to bring the charge up to the temperature of the accumulator and to bring the acid up to full strength. Another stainless steel Warren pump will supply cold acid to the high pressure educator. The stainless steel valves will be furnished by Hasco and the stainless steel pipe and fittings by Misco "C."

Increased acid plant capacity will be gained by installation of an additional Jenssen type, lead sulphur dioxide gas cooler, increased pipe diameter and 3 Ingersoll - Rand stainless steel acid pumps. The burner will be regulated by a Bristol liquid level control and Micromax sulphur dioxide control.

Rearrangement of the whole screening system is planned by adding several new items of equipment and improving the rest. Sulphite will be flushed from the blow pits into a surge tank holding one hour's production. From the surge tank the stock will be pumped to an Askanea regulator which controls both the volume of the thick stock and dilution water to pass a regulated volume of uniform consistency stock. The regulated stock will be passed to two Jonsson stainless steel knotters and then to the flat screens. The flat screens will be improved and four new twelve plate Packer screens added. One of the new screens is a Packer super-screen with a cast iron frame and forced feed lubrication system for all the moving parts. New pumps will be added and piping and conveying equipment expanded to handle the increased production.

It is planned that with the expanded sulphite production that as soon as newsprint commitments from this mill are filled, it will provide the mill with sufficient pulp capacity to operate both paper machines entirely on sulphate papers. In the meantime the excess sulphite capacity will be sold on the spot market.

Wisconsin Reservoirs Continue to Shrink

WAUSAU, Wis.—Reservoirs of the Wisconsin Valley Improvement company reached a new low during the week of March 8. The Eau Pleine river reservoir remained stationary, but the total system contributed 461 million cubic feet to the Wisconsin river flow for maintenance of hydroelectric power. As a result the reservoirs were at only 3.13 percent of total capacity, compared to 5.84 percent on February 29.

On March 8 total storage in the reservoirs was 533 million cubic feet, compared to 902 million cubic feet on the same date in 1947 and 5,135 million cubic feet in 1946.

Dunn Sulphite Names Wales to be Sales Head

PORT HURON, Mich. — H. G. Wales has recently been promoted to vice-president in charge of sales for the Dunn Sulphite Paper Company. He has been mill manager and, prior to that, he was technical director. He joined the company in this position in 1929. With this background and his familiarity with the production end, Mr. Wales' mill experience is expected to be of considerable help and benefit to him in his contacts with the trade.

ANDREW J. LACOCK

who has been named New York District Manager of Sales for Lukens Steel Company and divisions, By-Products Steel Co. and Lukenweld, Coatesville, Pa.

International Plans Nation-Wide Parley

NEW YORK—One of the largest corporate birthday parties ever held in the United States will be celebrated during the week of June 14th through 19th it was made known this week by John H. Hinman, president of International Paper Company. Mr. Hinman declared that Golden Jubilee parties would be held simultaneously that week by 31 mills and plants of the International Paper family throughout the country in observance of the fiftieth anniversary year of the company. That same week the pulp, paper and board mills of Canadian International Paper Company, New Brunswick International Paper Company and their affiliates, will hold open house.

In the United States, eight mills and six converting plants in the South and six other plants in the Mid-West and Far West are scheduled to hold birthday parties. In the Northeast, eleven mills and plants will participate in the celebration. The six Northeastern mills of the company, Mr. Hinman pointed out, are the direct inheritors of the earliest papermaking skills and traditions of the U. S. paper industry. It was in the Northeastern states where the company had its beginning 50 years ago.

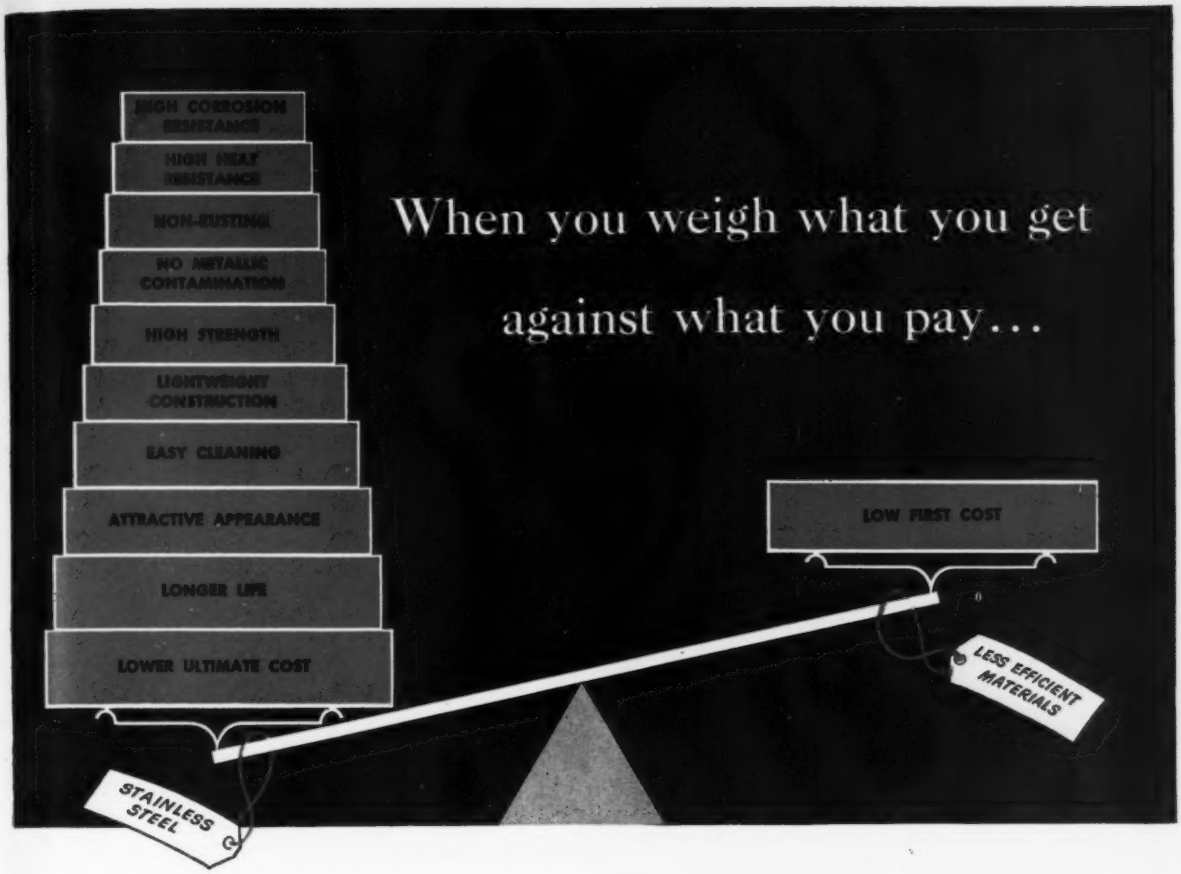
At the same time, Mr. Hinman issued a special statement on the future outlook of the International Paper Company. He declared that economic forces are now at work which may revolutionize the paper industry in this country.

"The occasion of our fiftieth anniversary celebration," Mr. Hinman said, "is a time not only for looking back with pride but also for looking ahead with confidence to an exciting future. I think it is becoming increasingly apparent that the future of our company does not lie in any narrow conception of the uses of wood, but in a full realization that we ourselves are processors of a crop from which we can develop—alone or with others—a great variety of products for the good of man.

"Perhaps in the next half century we will discover that paper was only the first of many such products. More and more, wood pulp and paper are being recognized, not as ends in themselves, but as beginnings — as materials out of which countless other things can be made. The increasing use of dissolving wood pulp for the manufacture of rayons and other synthetic products is a reminder that once wood is reduced to a pure and stable chemical, it provides a base on which the chemist can build a hundred different products."

Mr. Hinman said he thought it was quite possible that in the future the great tree crops of the United States would supply not only paper for many varied purposes, and dissolving pulps

(Continued on page 20)



the balance is in favor of STAINLESS

MATERIALS less efficient than Stainless Steel have in their favor only one advantage—lower first cost. Against this Stainless offers ten advantages.

That's why Stainless Steel does so much more, does it so much better and lasts so much longer. That is why so often Stainless is by far the cheapest material you can use.

The time-wasting shutdowns it avoids where ordinary materials fail under corrosive attack or high heat —the weight Stainless Steel saves in equipment that must move or be moved—the lower cleaning costs its use ensures—the way it eliminates product losses caused by metallic contamination — the longer service life, fewer repairs and minimum maintenance that result from Stainless Steel's superior physical properties—all these far outweigh its sometimes higher cost.

These proved, money-saving advantages of Stainless you can obtain at their fullest in U·S·S Stainless Steel.

In U·S·S Stainless Steel we can offer you — *for almost immediate delivery*—a complete family of perfected, service-tested corrosion- and heat-resisting steels in a wide variety of forms, sizes and analyses. Plan to use them to improve your product or equipment. Our engineers who are specialists in the use of Stainless Steel will gladly recommend what grade to use and show you the best way to obtain optimum benefits at minimum cost. Ask for their assistance at any time.

U·S·S STAINLESS STEEL

USS STAINLESS STEEL — UNITED STATES STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

8-512

UNITED STATES STEEL AMERICAN STEEL & WIRE COMPANY, Cleveland, Chicago & New York
CARNEGIE-ILLINOIS STEEL CORPORATION, Pittsburgh & Chicago · COLUMBIA STEEL COMPANY, San Francisco
NATIONAL TUBE COMPANY, Pittsburgh · TENNESSEE COAL, IRON & RAILROAD COMPANY, Birmingham
UNITED STATES STEEL SUPPLY COMPANY, Warehouse Distributors—Coast to coast · UNITED STATES STEEL EXPORT COMPANY, New York

Newsprint Output Off In February

NEW YORK — Newsprint production in Canada during February 1948 amounted to 344,645 tons and shipments to 332,211 tons, according to the News Print Service Bureau. Production in the United States was 58,016 tons and shipments were 59,019 tons. The output in Newfoundland was 24,783 tons and shipments were 17,707 tons making a total North American production of 427,444 tons and shipments of 408,937 tons compared with continental production of 433,807 tons and shipments of 406,777 tons in February 1947.

The Canadian mills produced 5,014 tons more in the first two months of 1948 than in the first two months of 1947, which was an increase of 0.7 percent. The output in the United States was 8,326 tons or 6.3 percent below that in the first two months of 1947; in Newfoundland production was 8,963 tons or 14.5 percent less, making a net decrease of 12,275 tons, or 1.4 percent less than in the first two months of 1947.

Stocks of newsprint paper at the end of February were 81,764 tons at Canadian mills, 7,355 tons at United States mills, and 58,479 tons at Newfoundland mills, making a combined total of 147,598 tons compared with 129,091 tons on January 31, 1948, and 222,645 tons at the end of February 1947.

Hartig Describes Impact Of Devalued Franc

NEW YORK—Charles R. A. Hartig, executive vice-president of Gaillet & Hartig Co. Inc., just returned from a short trip through Belgium, Holland, France, Switzerland, and Italy, describes the European economic situation as deeply affected by the devaluation of the French currency. A success of the French experiment will constitute a decisive step towards the re-establishment of free enterprise, and might lead other countries to try similar methods for the decontrol of their currency and for stimulating their exports. A failure, however, might lead to serious economic complications in France and other countries on the European Continent, says Mr. Hartig.

Wisconsin Payrolls Shrink Slightly

MADISON, Wis.—The total number of employes in Wisconsin paper mills and plants manufacturing allied products showed a decline of 0.2 percent during January compared with the previous month, according to the Wisconsin Industrial Commission. There were 28,400 persons employed in January and the estimated weekly payroll aggregated $1,621,000. The Commission did not include any estimates regarding the increase or decrease in this total when compared to the previous month.

The working week averaged 44.1 hours and the average hourly pay was $1.296, bringing the average weekly pay to $57.17.

Nineteen firms manufacturing paper and allied products in Milwaukee county reported an increase of 0.6 percent in the number of employes and an increase of 1.6 percent in total weekly payrolls. The number of workers was 3,306 and the average weekly payrolls amounted to $189,970. The average working week was 44.6 hours and the average rate per hour was $1.288, bringing the average weekly pay to $57.46.

Van Brunt Succeeds Santry As Engineering Executive

NEW YORK—John Van Brunt, Combustion Engineering Company's vice-president in charge of engineering for the past twenty-five years, has been appointed vice-president and consulting engineer. Wilbur H. Armacost, vice-president, has been appointed to succeed Van Brunt as vice-president in charge of engineering.

Mr. Van Brunt, a graduate of Stevens Institute of Technology of the class of 1897, has long been recognized as an outstanding authority on the design of large high-pressure boilers and fuel burning equipment. He has been responsible for the design of many hundreds of boilers now in service in large power stations throughout the country. He is a fellow of the American Society of Mechanical Engineers and a member of various other engineering societies.

Mr. Armacost, a graduate of Armour Institute of Technology of the class of 1916, has been associated with the company and its affiliates since 1920. He was elected a vice-president of Combustion in 1943.

Brotherhood Installs Its New Slate

WATERVLIET, N. Y.—Guests at the recent installation ceremony of the local branch of the International Brotherhood of Papermakers included James F. Adams, president of the John A. Manning Paper Co.; Elmer C. Schacht, vice president of the Behr-Manning Corporation; Henry Gentile, factory personnel manager of the Behr-Manning Corporation; John O. Amstuz, chief engineer, and Howard Baker, superintendent of Behr-Manning.

The newly elected officers are Leo Donovan, president; Francis X. Breton, vice president; William Gaily, treasurer; Joseph Wrzochalski, financial secretary; Ann Colett, recording secretary, and James Ryan, financial secretary. William Adamson, retiring president, was presented with a gift of a $100 savings bond.

Vancouver Operators Oppose License Plan

VANCOUVER, B.C.—R. M. Howard, Vancouver lawyer, has been engaged by lumber operators in interior British Columbia, and truck operators on the Pacific coast, to launch a drive during the B. C. Legislature sessions now in progress for repeal of the forest management license legislation enacted in 1946.

Mr. Howard declared the small operators fear they will be frozen out of future timber supplies which will all come under control of the large companies.

He said he is acting for a group of 60 operators in the Quesnel region who are opposing a management license for Western Plywoods Ltd., and for the Truck Loggers' Association opposing a license for Canadian Western Timber Company on the east coast of Vancouver Island. They will appeal to the cabinet against granting of the licenses.

"Our view," said Mr. Howard, "is that the plan laid down in the 1946 legislation is not a practical method of handling sustained yield forestry. It can only result in turning the timber resources over to the large operators and freezing out the small man."

Mr. Howard declared that, when the House meets the small operators will send delegations down to see the MLA's and put their views before them.

Mr. Howard said the problem of timber conservation should be attacked from a different angle than at present.

Under present legislation, he said, an operator is forced to pay for insurance and conservation of 100 times as much timber as he uses in one year.

Cost of this plan would be prohibitive to hundreds of small operators, he asserted.

Marinette Dramatizes The "Lost Timer"

MARINETTE, Wis.—"Lost Timer" will play an important part in the current safety program of Marinette Paper Company. He is a symbolic character, a mannikin dressed as a tramp, and was introduced at the third annual safety dinner for supervisors and members of the employe safety committees on March 11. When the plants have been free from accidents for ninety days, "Lost Timer" will be on exhibit in the office of the company's manager. If a lost-time accident occurs, he will become the charge of the head of the department in which the accident occurred.

Claire L. Lyon, plant personnel manager of Scott Paper Company, Chester, Pa., was the principal speaker, and told his listeners how to merchandise a sound safety program.

Einar T. Martenson, Marinette safety engineer, was toastmaster and D. B. Wilkinson, general manager, extended a welcome to the guests.

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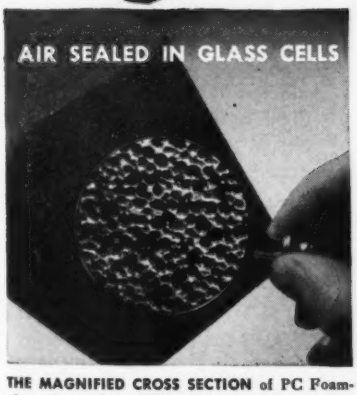

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FINANCE

Glatfelter Income Up Fifty Per Cent

SPRING GROVE, Pa.—The annual report of the P. H. Glatfelter Company, and its subsidiary, The Glatfelter Pulp Wood Company, for the year ended December 31, 1947, has just been released by P. H. Glatfelter, president, and in substance is as follows:

"In many respects the year 1947 was a continuation of the pattern set in 1946. The year was just as difficult in all aspects, due to shortages of materials, scheduling of operations and obtaining maintenance parts. Nevertheless, we produced the greatest tonnage of paper ever produced by this company.

"Net income after taxes for the fiscal year ended December 31, 1947, as shown by the financial statements, certified to by Haskins & Sells, certified public accountants, was $552,106.98 compared with $374,590.37 for the preceding year. It should be noted, however, that we paid Federal and State taxes on income in the amount of $359,275, as compared with $240,350 in 1946.

"Dividends declared in 1947 were at the rate of $5 per share on the preferred stock and $.37½ per share on the new common stock.

"The outlook for 1948 appears favorable," says Mr. Glatfelter. "Tempered only by shortages of raw material and other unforseen obstacles, we believe that our production and sales will be satisfactory."

Continuing, Mr. Glatfelter adds: "At a special meeting of the stockholders held on May 28, 1947, an increase in the indebtedness of the company was authorized and changes in the capital structure approved. Following this authorization $3,000,000 first mortgage 3½ percent sinking fund bonds, 6,243 shares of 5 percent cumulative first preferred stock and 40,000 shares of common stock were issued and sold by the company.

"Of the proceeds of this financing $1,485,000 was used to retire the outstanding first mortgage bonds and bank notes and the balance of $2,559,800 has and will be used for improvements to plant facilities.

"The improvement program contemplates the expenditure of approximately $3,500,000, which will be used for machinery, tools, new boiler, turbines and other power equipment. It also provides for additional water storage and stream improvement facilities.

"The plant development program has progressed very satisfactorily considering the shortages of material and similar factors.

"The fine showing of the company for 1947 is most satisfactory. However, in considering it we should not overlook the fact that under present inflated prices a larger amount of working capital is needed and earnings must therefore, be retained in the business to an even greater extent than is normal for a growing business such as ours.

"Another factor of much importance is that depreciation rates in relation to present costs of buildings and equipment are quite inadequate. Indeed, replacement costs are estimated to be from 100 to 200 percent above pre-war costs."

Diamond Match Net Sets New Record

NEW YORK—Net sales of $67,562,338, highest in its history, were reported for 1947 by the Diamond Match Company. This represents an increase of 40.1 percent over sales of $48,217,562 in 1946.

Net earnings also set an all time company high totaling $8,323,421 for 1947, an increase of 87 percent over the $4,435,490 earned in 1946. Net income for the year after taxes and and a provision of $1,500,000 for declines in inventory values were $3,453,546, equivalent to $2.63 per common share, after allocation of $2.00 per share to preferred stock, as compared with $2.32 in 1946.

"For the first half of 1947," Robert G. Fairburn, president, said in his report to stockholders, "sales of matches were greatly retarded by the possibility of a reduction of the federal excise tax. Wholesalers and retailers were reluctant to place matches in inventory and suffer later losses in values in the event of a downward revision of the tax. By July 1, it became clear that no reduction was imminent and sales for the last half year were unusually heavy."

Mr. Fairburn noted also that, "sales of paper and pulp products exceeded those of previous years principally by reason of increased availability of pulp to manufacture into finished products at the Plattsburgh, N.Y., paper and moulded pulp mill. This was made possible by the B-F-D Division bringing into operation a sulphite and groundwood pulp mill at Ogdensburg, N. Y., which gave it complete control of its own source of raw material."

The B-F-D Division of the company was organized after the purchase on June 30 of the B-F-D Com-

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending March 13, 1948

STOCK	High	Low	Last
A. P. W.	4¼	4⅛	4¼
Armstrong Cork Co.	48	46¼	47½
Armstrong Cork Co., 4 pf.	107¾	106	107¾
Armstrong Cork Co., pf. 3¾	92¾	92	92¼
Celotex Corp.	24	23	24
Celotex Corp., pf.	19	18⅝	19
Certain-Teed Products Corp.	14⅜	13¾	14
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	20	19½	20
Champion Paper & Fibre Co., pf.	94¼	94	94
Congoleum Nairn Co.	32	31	32
Container Corp. of America	37	35¾	36½
Container Corp. of America, pf.	....	....	....
Crown Zellerbach Co.	29⅜	27¾	27⅞
Crown Zellerbach Co., pf., 4.20	97	95	96
Crown Zellerbach Co., 4 pf. 4	110	104½	104½
Dixie Cup Co.	33½	32¾	32¾
Dixie Cup Co., A	50	47½	50
Flintkote Co.	33⅞	32¼	32⅜
Flintkote Co., pf.	....	....	....
Robert Gair	8⅛	7¼	7⅞
Robert Gair, pf.	18⅞	18⅝	18⅝
International Paper Co.	45½	43¾	44½
International Paper Co., pf.	....	....	....
Johns-Manville Corp.	36½	35½	36¾
Johns-Manville Corp., pf.	104	104	104
Kimberly-Clark Corp.	20⅝	19¾	20
Kimberly-Clark Corp., pf.	96	94¼	96
Mac Andrews & Forbes	37½	37½	37½
Mac Andrews & Forbes, pf.	....	....	....
Marathon Corp.	19¾	19⅛	19⅜
Mead Corp.	17⅛	17	17⅛
Mead Corp., pf., 4¼	86	85	85
Mead Corp., pf. 2	38½	38½	38½
National Container Corp.	12⅛	11½	11⅞
Paraffine Companies, Inc.	23½	22½	22½
Paraffine Companies, Inc., pf.	102	100	102
Rayonier, Inc.	25⅛	24¼	24⅞
Rayonier, Inc., pf.	32½	31½	31⅝
Ruberoid Co.	58	57	57
St. Regis Paper Co.	9½	8⅝	9½
St. Regis Paper Co., pf.	81	81	81
Scott Paper Co.	40⅞	39⅜	39⅞
Scott Paper Co., pf.	....	....	....
Sutherland Paper Co.	38⅝	38	38⅛
Union Bag & Paper Corp.	28¾	28	28⅛
United Board & Carton	12½	12⅛	12⅛
U. S. Gypsum Co.	98	96	96
U. S. Gypsum Co., pf.	173	171½	173
United Wallpaper	4½	4⅛	4⅛
United Wallpaper, pf.	30	30	30
West Virginia Pulp & Paper Co.	40¼	39¼	40
West Virginia Pulp & Paper Co., pf.	103½	103	103⅛

BONDS

Celotex Corp., 3¼s '60	....	....	....
Certain-Teed Products Corp., 5½s '53	....	....	....
Champion Paper & Fibre Co., 3s '65	97¼	97	97
Mead Corp., 3s '68	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending March 13, 1948

STOCK	High	Low	Last
Great Northern Paper Co.	39	38½	38½
Taggart Corp.	10⅝	10½	10⅝

Don't Pass Dividends—Pass the Buck

IF YOU ARE A PAPER MAKER, and are plagued with poor production, pass the buck to Moore & White. Your equipment probably needs modernizing. We suggest that you *ought* to do it . . . and stiffening competition says that you *must*.

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If this is not feasible, the next best thing is to have us rebuild your present machines. We can unlimber those balky behemoths in your plant, take the creaks out of their joints, and streamline them for speed you never dreamed was in them. We will put them in such fine fettle that they'll deliver two- or three-fold their current output . . . enable you to wangle out the profits which may mean the difference between dividends passed or paid.

A major operation, yes. But it will take less time than to custom-design and build complete new assemblies . . . and the sharp-pencil boys in our engineering department will see to it that the cost is definitely less. They're itching to get going *now*.

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pany, manufacturer of matches, toothpicks, clothespins, candy and ice cream sticks, other woodenware, moulded pulp plates and tray, and a wide assortment of paper products including toilet tissue, napkins, towels and household waxed paper.

Sales of lumber and building materials through 102 retail and two wholesale company-owned yards and stores "were limited by the availability of products for sale," Mr. Fairburn said. "Company sawmills maintained record activity to provide lumber and substantial purchases were also made from outside mills. Yards were stocked with a wider assortment of general building materials than in 1946."

Mr. Fairburn warned that exorbitant pricing in the lumber and building field "to take advantage of a temporary market condition is shortsighted and the company has considered it to its own interest, as well as to the interest of the national economy, to maintain a reasonable relationship of price to cost."

Net current assets of the company, the report stated, increased during the year from $23,068,868.44 to $27,553,630.25, but the ratio of current assets to current liabilities declined from 10.72 at the close of 1946 to 4.52 at the close of 1947, a decrease attributable largely to bank borrowings of $4,000,000. Heavy demands were made on the company's cash to finance postwar rehabilitation as well as increases in inventories and accounts receivable incident to expansion of sales. During the year inventories more than doubled, increasing from $12,213,517.85 to $24,982,033.08, an increase partly attributable to the acquisition of the B-F-D Company. The same acquisition and increased sales also raised the total of accounts receivable by $1,759,481.92.

The outstanding capital stock of the company at the close of 1947 was 600,000 shares of preferred stock and 856,000 of common stock. Common stock outstanding on July 1 was raised to 856,000 shares in connection with the B-F-D acquisition. At Dec. 31, 1947 there were 5,425 holders of preferred and 8,386 holders of the company's common stock.

Abitibi Profits Jump Fifty-Three Per Cent

TORONTO—Net profit for 1947 of Abitibi Power & Paper Company showed a 52.9 percent jump over the previous year. Earnings per share were $171.26 on the prior preferred, $6.05 on the $1.50 preferred and $5.11 on the common, as against $112.00, $3.92 and $2.72, respectively, for 1946. New records in sales and earnings were set up during the year. Net sales amounted to $64,340,010. Net profit was $8,563,046, as against $5,600,206 (including profits of $1,453,653 earned under receivership Jan. 1 to April 30, 1946, and carried to previous operating deficit). Dominion and provincial taxes at $9,800,000 were up $1,525,000 from 1946.

Puget Sound Proposes To Split Common

BELLINGHAM, Wash.—At their meeting held March 8, directors of Puget Sound Pulp & Timber Company declared a dividend of $1 a share on the common stock, payable March 31st to stockholders of record March 19, 1948. In 1947, common dividends of 50 cents a share were paid in the first and second quarters, and $1 a share in the third and fourth quarters of the year.

The board passed a resolution to submit to the stockholders at their annual meeting April 20, 1948, a proposal to make necessary amendments to the certificate of incorporation to split presently outstanding shares of common stock on the basis of two shares for one. The resolution provides for an increase in authorized shares sufficient to effect this split, issuance to shareholders of record July 1, 1948, certificates for the additional number of shares to which they are entitled, and elimination of all reference to preferred stock since redemption of that stock was completed January 1, 1948. New stock certificates will be mailed to stockholders July 15, 1948. Outstanding shares of common stock will not be called for exchange.

At present the certificate of incorporation authorizes 500,000 shares of no par value common stock, of which 389,094 5/18 shares are outstanding. As amended, the certificate would authorize 778,189 common shares, which is sufficient to effect the proposed two for one split and eliminate the fraction of a share.

Modern Containers Net Rises 16 Per Cent

TORONTO—Modern Containers net sales were higher and net profits increased 16.2 percent to $188,866 in 1947. Working capital increased $178,480 to $532,829, exclusive of amounts available from refundable portion of excess profits taxes.

An increase of $205,830 in surplus forward reflected amount available on year's operation, after payment of $1 per share on Class A stock and credit adjustments of $66,964 on sale of bonds, machinery, prior year reversal of depreciation provisions and through increased standard profit award. Consideration of dividends on common shares has been deferred by directors pending reduction of debenture debt and development of expansion program, Prsident and General Manager E. Roy Butler, states.

Bird Profits Nearly Trebled

EAST WALPOLE, Mass.—Bird & Son, Inc., and its wholly owned subsidiary, Berry Asphalt Company, report for 1947 consolidated net income of $2,806,083, equal after preferred dividends to $4.76 a share on the common stock. In the preceding year the company earned $940,855 or $1.47 a common share. Consolidated net sales were the highest on record, totaling $38,278,165. This was an increase of 37.3 percent over the 1946 total of $27,871,985.

Nashua Profit Goes Over a Million

NASHUA, N. H.—Nashua Gummed & Paper Company reports consolidated net profit of $1,002,579 for 1947, after Federal and Canadian taxes on income and all reserves. These earnings amount to $21.76 per share on the 46,058 shares of common stock outstanding and compare with consolidated net profit for 1946 of $693,883, equal to $15.06 per share on the same number of common shares then outstanding. Net sales for 1947 were $19,084,810, compared with $14,569,560 during 1946. In his report to stockholders, President Nunez observes that:

"During the year the demand for the company's products, with minor exceptions, was substantially in excess of our ability to produce. Raw materials, especially paper, were in short supply. No significant change in this condition is as yet apparent."

Provincial Paper Profits Nearly Trebled

TORONTO—A gain in net profits of Provincial Paper, Ltd. of 197 percent is shown in the annual report for 1947 over 1946, the totals being $1,055,511, or $2.92 a common share, against $355,170, or 90 cents a share in 1946.

Sales, after deducting outward freight, etc., totalled $11,829,261. Profit, before income taxes was $2,040,511 and provision for Dominion income and excess profits taxes and provincial income taxes was $985,000.

Balance sheet figures show net working capital well up at $2,925,147 against $2,234,454, current assets standing at $4,399,054 at the end of 1947 and current liabilities at $1,473,907.

Corrugated Box Net Up Seven Per Cent

TORONTO—Corrugated Paper Box Company net profits at $231,636 in 1947 approximately 7 percent greater than in the previous year. Working capital was $972,196, as against $921,178 in 1946. Plant and equipment has been maintained at a high level of efficiency and additions have been made to improve quality and increase production. With new equipment already delivered and machinery promised for delivery by June 1, 1948, the plants will compare favorably with any modern shop, president J. A. Whealy states. During the year additional property was purchased adjacent to the Toronto plant and plans are under consideration for erection of a new raw materials warehouse.

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Throws Cold Water on Holyoke Power Plan

HOLYOKE, Mass.—Arthur D. Weston, chief engineer of the State Department of Public Health and an expert on waters of the Commonwealth, has blasted the proposal of the Holyoke Gas and Electric Department to increase hydro-electric production on the Connecticut River.

The municipal department's proposition is being contested vigorously by all of the paper manufacturers here in Holyoke, who fear the loss of their valuable water power rights on the extensive Holyoke canal system of municipal ownership comes about.

Weston, testifying at a legislative hearing before the Committee on Harbors and Public Lands at the State House in Boston, tore the Gas and Electric Department's power project to shreds.

He spoke up in answer to the statements that enough hydro-electric power can be developed on the Connecticut River and elsewhere to supply the power needs of Massachusetts.

"If the state were to be covered by several feet of water, it would not be sufficient to develop the electricity needed in Massachusetts," he said in substantiating his assertion that steam plants, fueled by coal or oil, must be used.

Weston's observations on the Holyoke program, which he said will result in a loss from the power potential now available, carry more than ordinary significance. For he was a close associate of the late James L. Tighe, for a quarter of a century a member of the Municipal Gas and Electric Commission, and is an intimate friend of County Engineer Philip E. Bond of Holyoke who was engaged by Manager Francis H. King of the Gas and Electric Department to prepare preliminary plans on his power development scheme.

Taking up the proposal to erect a new dam in the Connecticut River at Holyoke, which would, it has been stated, develop 44,000 kilowatts at the outset, and ultimately 88,000 kilowatts, Mr. Weston said the Holyoke Water Power Company now develops 10,540 kilowatts at its Holyoke dam, and with all the smaller hydro-electric plants along the canals and the river, the total developed is 64,212 horsepower, which reduced to kilowatts is 48,000 —4,000 more than the plan of the supporters of the proposed new dam at the outset. To develop this 44,000 kilowatts, it would be necessary to destroy the 48,000 kilowatts now being developed, so at the outset there would be a net loss—the new power would merely be taking the place of that now being generated.

Representative Philip M. Markley, Democrat of Springfield, who signed the recess commission majority report, bespoke its recommendations and declared he felt Engineer Weston had made out an indisputable case for that report, as contrasted with the minority report.

The latter report was signed by Representative Thomas T. Gray of Springfield, Representative Gerald T. Bowler of Holyoke, Representative Ernest DeRoy of Chicopee, Representative George W. Porter of Agawam, Representative Anthony Parenzo of Westfield, Representative Joseph D. Rivest of Northampton, and Anthony Pimental, chairman of the Chicopee Planning Commission. Mr. Weston said he felt he could convince Mr. Pimental in a short time that further development of needed hydro-electric power in the state is not only uneconomical but impossible.

Army Would Restore Waterways Cutback

SPRINGFIELD, Mass.—The United States Senate has been asked by Army Engineers to restore all but one of the cutbacks made by the House in its record $538,875,000 waterways bill. The recommendation made in Washington had the concurrence of paper manufacturers throughout the Connecticut Valley, who have been prime movers in flood control movements in recent years to prevent further heavy property loss resulting from spring freshets.

The engineers' proposal would add $113 million or 25 percent, to the House total. If approved by the Senate, the House figure would be an all-time high.

The recommendation was made as a Senate appropriations sub-committee opened hearings on the flood control and rivers and harbors program for the year beginning next July 1.

Subcommittee Chairman Guerney, Republican of South Dakota, said his group will review with care the Army recommendations for each of the 244 projects in the program, checking them against House action.

The following amounts, by projects, are among those the engineers requested be restored. In all cases they bring the total back to the original figure proposed by the budget bureau.

Flood control:

Massachusetts: Chicopee, $146,000.

New Hampshire: West Peterboro Reservoir, $300,000.

Vermont, Union Village Reservoir, $300,000.

Rivers and harbors:

Maine: Portland Harbor, $600,000.

Neenah-Menasha Organize For Community Safety

MENASHA, Wis.—Groups interested in the various fields of safety were represented at a meeting Tuesday evening, March 16, at the Menasha high school to plan further steps in the organization of a community safety program for Neenah and Menasha. A representative from each group was named to serve on an executive committee. This committee will decide on questions of policy and procedure.

Vermont Seeks Delay On Wilder Project

SPRINGFIELD, Mass. — Paper mill owners throughout the Connecticut Valley—vitally interested in all phases of flood control on the Connecticut River to forestall possible repetition of the disasterous 1936 flood which caused millions of dollars worth of property damage—have learned that opponents of the proposed 385-foot Wilder Dam on the Connecticut River have won another round in their battle.

In Washington, the Senate Public Works Committee asked the Senate to direct the Federal Power Commission to hold a Senate hearing on the project and delay construction meanwhile.

On October 31, 1946, the Federal Power Commission authorized construction of the new power dam by the Bellows Falls hydroelectric corporation. This move was heartily approved by flood-weary paper manufacturers. A license was issued for the project last June 19.

The committee resolution would amend this license to require a rehearing and review. It must be approved by the Senate and House of Representatives, and then signed by President Truman to become effective.

Senator Aiken, Republican of Vermont, acting for a group of Vermont and New Hampshire farm and dairy interests, at first sought to void the original FPC order. But the committee revised this to require the second hearing. Governor Ernest Gibson of Vermont and others complained that the dam would flood rich acres in the Connecticut River basin and cause other sections to be water-logged. They pointed out that much of the milk for the Greater Boston market comes from that particular section proposed to be flooded when the dam is constructed.

Most witnesses said they would not object to a dam five feet lower, or 380 feet above mean sea-level.

The proposed dam would replace a present structure near the towns of Hartford, Vt., and Lebanon, N. H.

The Congressional move is necessary because opponents of the high dam failed to file a protest and ask a rehearing of the Federal Power Commission within 30 days.

If Congress and the President agree on the resolution, then both parties to the dispute could carry their appeal into Federal courts.

Cornwall Mills Installs New Jones Jordan

CORNWALL-ON-HUDSON, N. Y.—A new E. D. Jones Standard Jordan has just been installed at the Cornwall Paper Mills Company. This mill manufactures corrugating board and is finding the new Jordan a valuable piece of equipment for handling the refining of waste papers and a certain percentage of new kraft pulp. The Jordan is equipped with stainless steel filling and with SKF spherical roller bearings."

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Is lack of accurate stock control causing you serious losses through poor quality of finished product and resultant loss of sales? Are you looking ahead to the customers' demands for a better, more uniform paper? And do you know how much underweight or overweight stock is costing you in wasted tonnage? You may be losing thousands of dollars annually through consistency variations far in excess of the standards you are trying to maintain. Check at the source and learn what it is costing you in real money losses each day through varying consistencies. Then investigate the advantages, and large savings you can effect by use of the BRAMMER RECORDING CONSISTENCY REGULATOR which accurately controls consistency within 1/10th of 1%.

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Giegengack Resigns As Public Printer

(Continued from page 8)

take with you my very best wishes for the future.

The President pointed out that only one Presidential appointee now in office, Harry B. Mitchell, Civil Service Commissioner, has served a longer term at the head of a Federal agency.

The announcement to the officials of the Government Printing Office was the first knowledge they had of the Public Printer's intention to give up his public duties. Mr. Giegengack, in thanking them for their cooperation and assistance through the difficult years of his administration, recounted the accomplishments of the G.P.O. during this period and asked that they continue their efforts to keep it modern, efficient and progressive. "Your responsibility to the Government," he said, "is to see that it always gets its printing more economically, more efficiently and more expeditiously than it could from any other source. If you fail in this you are not doing your job, but I have every confidence in your ability, in your loyalty, and in your devotion to your task."

Since 1934, when Mr. Giegengack became Public Printer the number of employes in the G.P.O. has increased from about 5,000 to approximately 7,000. In the same period, the value of its production has jumped from $18,000,000 to an average annual business of $63,000,000. One of the first steps that made the increase possible was the replacement of the old ramshackle buildings with the present modern plant that covers 31½ acres of floor space. Through the Public Printer's foresight, it was ready for occupancy just two years before the outbreak of the war.

Mr. Giegengack, who served his apprenticeship as a printer in New York City printing houses, worked there for several years as a journeyman, foreman and superintendent, before entering the armed forces in World War I. He returned to civilian life after serving as Mechanical Superintendent of the Stars and Stripes, and later became a partner in the firm of Whittaker, Giegengack and Trapp, Inc. He was active in industry organizations, being for two years president of the Typographers Association of New York, for four years was president of the New York Club of Printing House Craftsmen and for two years was president of the Industrial Association of Printing House Craftsmen. At present he holds membership in a number of local and national printing associations.

John J. Deviny, the newly appointed Public Printer, has been Deputy since 1941. He was born in Washington, D.C., practically within the shadow of the United States Government Printing Office. His education was obtained at the Gonzaga College High School, one block from the printing plant; at the Josephinum College in Columbus, Ohio; and the Washington College of Law in Washington, D.C., from which he received his law degree as the president of his graduating class.

Mr. Deviny is a practical printer, having entered the Bureau of Engraving and Printing as an apprentice plate printer and worked as a journeyman for a number of years. He was appointed Superintendent of Work or Production Manager for the entire plant during World War I and was in charge of production during that critical period. Later he was advanced to Assistant Director and resigned that position in 1925 to become Director of Research and Publicity for the Miller Saw Trimmer Company, Pittsburgh, Pennsylvania. Subsequently, he was Executive Vice President of the United Typothetae of America in Chicago and in Washington and during N.R.A. was National Code Director for the Relief Printing Industry.

International Plans Nation-Wide Parley

(Continued from page 10)

as the base for a variety of chemical synthetics, but also foodstuffs, alcohol, and chemical raw materials from parts of the woods which are largely wasted today.

Mr. Hinman also pointed out that the future held a special challenge in the field of forestry.

"One of the most significant developments in recent years," he explained, "is the widespread acceptance throughout this country of the fact that trees are a crop. They can be grown as a crop. Tree farms are as practical as farms for wheat, or corn, or cotton.

"International Paper Company's objective, now and in the future, is to achieve a balance between growth and consumption. Widespread programs of education, particularly among the youngsters who will be the farmers of tomorrow, are helping us to achieve our goal."

Mr. Hinman also pointed to the potentialities of good forest management which he described as enormous.

"Fire, insects and disease," he said, "are big consumers of wood. In the United States the wood-pulp and paper industry consumes about 17 million cords of wood a year. However, 70 million cords a year are destroyed by fire, insects, disease and other natural forces.

"The prevention of forest fires is the number one problem in the management of our forests. This is a public responsibility, since fires are principally caused by public carelessness, and their spread is not limited to the property of any one individual. In 1946, for example, 20 million acres of woodlands were burned in the United States alone."

Full details of the International Paper Company's Golden Jubilee Celebration will be announced within a few weeks, Mr. Hinman said.

Rawson Takes Up Work With Forest Industries

WESTON, Mass. — Lovell Cook Rawson began work on March 15 with the American Forest Products Industries as field representative in New England and the Northeast. With Rawson's addition to the organization, American Forest Products Industries will have three field representatives. Clyde Baser, New Orleans, is the representative for the southern area, while Harold Olson, Portland, is representative for the west.

Born in Uxbridge, Mass., Rawson received his formal education in that state and later received his Bachelor of Science degree in forestry from the University of Maine.

He has had wide experience in his profession and in 1933 was appointed to head and organize the Massachusetts Forest Service Civilian Conservation Corps. Rawson has also collaborated in writing manuals on forest management and fire protection. More recently, he worked with the Boston agency of the War Assets Administration. His headquarters will be in Boston.

Britain Eliminates Towels And Napkins from Import List

WASHINGTON—Paper towels and paper napkins have been eliminated from the list of commodities which may be imported into Britain in "token" quantities this year, it was learned last week when British authorities inaugurated token imports for 1948, following operation of the plan last year.

Under this plan exporters in this country with an historical record of shipments to the British market dating back to 1936, 1937 and 1938, are permitted to make small exports to the United Kingdom, in order to permit them to keep brand names and products before the public in that market.

Elimination of the above paper products, it was stated, was necessitated by the fact that British manufacturers were unable to produce competitive quantities of the products for the home market due to restrictions, and it was felt that the imports would be unfair to these domestic producers in consequence.

Hollingsworth & Vose Installs Three Jones Refiners

EAST WALPOLE, Mass. — The Hollingsworth & Vose Company has recently installed three new high-speed refiners built by E. D. Jones & Sons Company. These units are direct connected to 75 horsepower, 1200 r.p.m. motors and are equipped with stainless steel plug and shell filling. The bearings are anti-friction, and the Jordan shell is split in two halves to facilitate disassembly for refilling or inspection.

the Improved

Giant Nekoosa Bark Press

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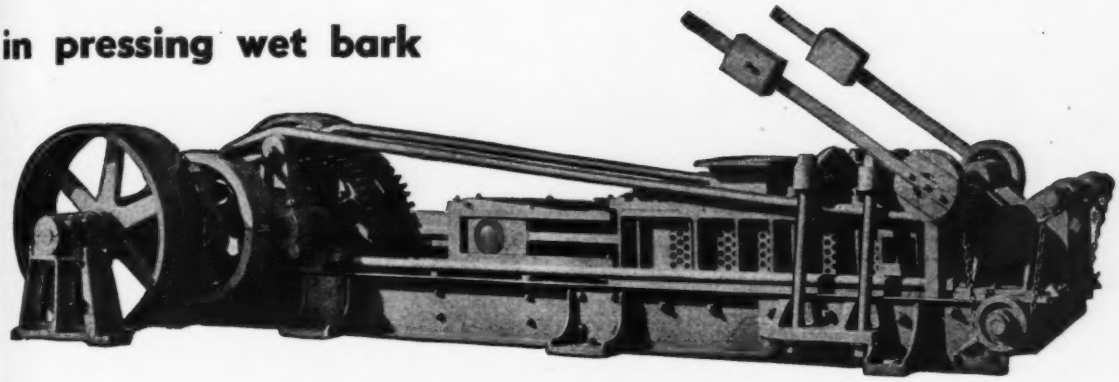

Make Waste Bark Pay You a Profit

The Giant Nekoosa Bark Press will press all bark, with the exception of green balsam, 50% dry. In an average mill, steam produced from this pressed bark will pay for the equipment installation in less than a year. What could be a better investment?

The above statement has been proved many times in mills where they are in use. These machines truly turn waste bark into profits.

The Giant Nekoosa Bark Press has been standard equipment in many mills in the U. S. & Canada for twenty-five years.

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Other Products

Wood Peelers	**Chip Cutter**	**Washers**
Flat Screens	**Agitators**	**Digester Fittings**
Ball Valves	**Deckers**	**Press Marking Equipment**

Trees for Tomorrow Reports on Program

MERRILL, Wis.—The following officers were re-elected at the annual meeting of the Board of Directors of Trees for Tomorrow Inc. held in Merrill yesterday: President, Folke Becker, president Rhinelander Paper Company, Rhinelander; Vice President, Emmett Hurst, head of woodlands division, Consolidated Water Power and Paper Company, Wisconsin Rapids; Vice President, C. G. McLaren, vice president, National Container Corp. of Wisconsin, Tomahawk; Secretary-Treasurer, D. B. Smith, president Ward Paper Company, Merrill; Executive Director, M. N. Taylor, Merrill.

Members of the Board of Directors are the above officers, and the following representatives of member mills: Carl Bronsted, general manager Tomahawk Pulp Company, Tomahawk; Robert Caldwell, vice president Rhinelander Paper Company, Rhinelander; Harold Collins, president Wausau Paper Mills Company, Brokaw; D. C. Everest, president Marathon Corporation, Rothschild; Stanton W. Mead, vice president Consolidated Water Power and Paper Co., Wisconsin Rapids; A. J. Schierl, secretary-treasurer Whiting Plover Paper Co., Stevens Point; N. S. Stone, vice president and general manager Mosinee Paper Mills Company, Mosinee; E. E. Zahn, pulpwood department, Marathon Corporation, Rothschild; and Leonard Kuehl, executive vice president, Flambeau Paper Company, Park Falls.

In commenting on the activity of the past year, Mr. Becker said, "In-the-field assistance was given to 67 small land owners who placed 19,609 acres under forest management; 500,000 trees were distributed; 1,245 people from 67 Wisconsin countries attended sessions at the Trees for Tomorrow Conservation Camp at Eagle River, a project operated in cooperation with U. S. Forest Service.

Mr. Becker also pointed out that the cooperative efforts of industry, public agencies, conservation units, and schools indicated Wisconsin was embarking on a large scale resource building program and on a level never approached before.

Another forester will be added to the staff of Trees for Tomorrow to help in the development of forest management plans for small land owners.

Lake States TAPPI Hears of "New Look"

APPLETON, Wis.—The March meeting of the Lake States Section of TAPPI was held, as usual, at the American Legion Club House on Tuesday evening, March 9. E. Sterling Skinner of the Beloit Iron Works discussed recent experience in the design and operation of paper machines.

His description of the "new look" in paper machines began with the fan pump and continued step by step through the machine to the winder. His verbal discussion was followed by the presentation of slides which illustrated the new features of machine design.

British Columbia Sees 20 Million Plantings

VANCOUVER, B.C.—Planting of between 14 and 15 million trees will be undertaken in the coastal area of British Columbia this year by the British Columbia Forest Service, according to the Hon. E. T. Kenney, Minister of Lands and Forests for the province. Forest nurseries are expected to reach their maximum production of coastal species this year, he said.

"The nurseries will produce upwards of 20 million trees."

Replanting of trees on denuded areas started just before the war when the late A. Wells Gray, Minister of Lands, initiated the policy. To date 44,679,000 trees have been set out.

The "maximum" is not set by the physical limits of forest nurseries, but by the labor bottleneck that requires all trees to be planted within about six weeks. During the war the annual plantings fell off because of a shortage of labor, and the same difficulty has confronted the department since the war.

As a result of the policy of reforestation, 56,498 acres of logged off lands are now covered with a new crop of healthy young trees, so planted as to permit maximum growth and development.

Kimberly Painters Fete 28th Year of Safety

KIMBERLY, Wis.—Painters of the Kimberly mill of Kimberly-Clark Corporation on Wednesday, March 3, passed their 28th year without a lost-time accident, and celebrated the occasion at a dinner at 5:30 that evening at the clubhouse. Several officials from Neenah attended. The department had its last accident on March 3, 1920.

Alver Lindskoog, structural engineer at Kimberly, was master of ceremonies. E. G. Johnson, Neenah, staff safety and service supervisor, expressed his congratulations. William Van Hout, safety director at the mill, told the painters that they have a remarkable record, considering the hazardous work they do. J. T. Doerfler, mill manager, said that the record was eight years old when he became manager.

Other speakers were Ron Evans, Kimberly plant engineer; Arnold Bongers, structural foreman; Joe Evers, head painter, and Al Fulcer, now retired, and a former foreman in that department. Jake Van Wymeren, another retired painter, and Al Briggs, personnel director at Kimberly, also attended the gathering. Entertainment was furnished by Dick Brown of Kaukauna in a ventriloquist act.

Kalamazoo TAPPI Talks Ballistics

KALAMAZOO — Materials handling throughout the process of paper making was discussed at the meeting of the Kalamazoo Valley Section of TAPPI at the Columbia Hotel on Thursday evening March 4th. The first speaker was S. L. Foster, chief mechanical engineer of the Kalamazoo Vegetable Parchment Company and the second was A. L. Sherwood, technical director of the Sutherland Paper Company. Preston Carter of KVP was the program chairman for the evening.

Mr. Foster told of material handling methods used at their Espanola and Parchment plants. Of particular interest was his description of the Kamyr pulp lapping machine used at Espanola which is 160 inches wide and has a production capacity of approximately 248 tons in 24 hours. This machine is so designed that only one fork truck is needed to remove the pulp away from the discharge end. Of interest, also, was Mr. Foster's discussion on the use of trucks at different places in the mill as well as the detail description he gave of conveyor belts and systems used at Espanola and Parchment.

Mr. Sherwood told of plans for handling equipment in the new Sutherland plant going up at the Standard Division. This plant is being constructed so as to permit the use of all the most modern methods of material handling.

A panel discussion was held following the two talks, with Preston Carter acting as moderator and Messrs. Foster, Sherwood and J. Stone of the St. Regis Paper Company serving on the panel. This discussion was quite lively with most everyone participating.

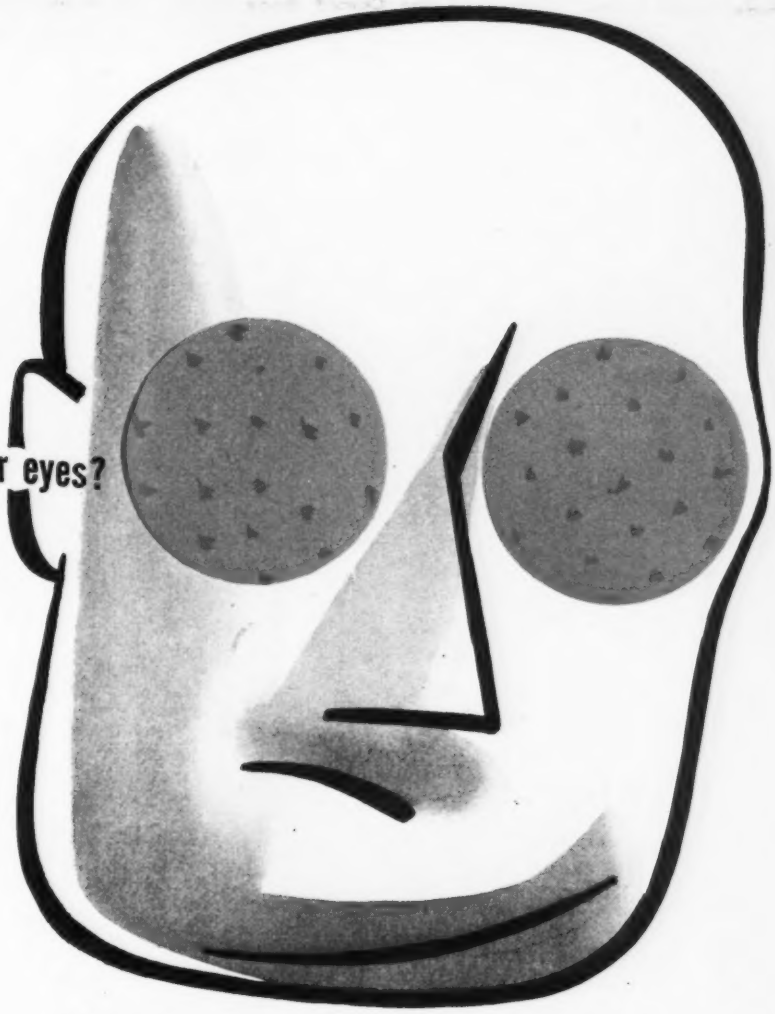
The following is a list of those attending:

Bradford, H. F., Beebe, C., Bachelder, D. D., Blamire, W. P., Burstein, B., Bartholomew, P., Campbell, L. E., Crotty, E., Curry, W. D., Cole, A., Carter, P., Chappel, F., Clark, R., Field, C. A., Foster, S. L., Gardner, C. E., Galbraith, M., Gardner, T. W., Grostra, P., Gearhart, D. B., Hoelderle, C., Hodgemire, F. M., Hartman, H. W., Harrison, J. J., Kirkpatrick, W. A., Kukolich, S. I., Kitchen, H. D., Lunsford, W. A., La Liberte, L. H., Libby, F., Mumma, O., Matreia, K., McClure, J., Marshall, J. I., Mashburn, R., Militzer, D., Nendorf, H., Oltman, R. B., Olmstead, C. H., Parcels, A. A., Quincy, L., Smith, H., Stafford, F., St. Clair, H. P., Steward, R. B., Slocum, C. E., Sherwood, A. L., Stone, I., Sprau, W. J., Tobin, W. R., Trelfa, R.

Clinton Appoints Whiteman

CLINTON, Ia. — Carl Whiteman of New York has been named General Sales Manager of Clinton Industries, Inc., by R. E. Clizbe, President of the company.

ever have spots before your eyes?



paper makers, you can stop pitch troubles this year before they begin.

Spotted paper, plugged screens and wire, stuck paper on drying rolls and dry cans, can all be eliminated with Monsanto's Mertanol 7L.

This synthetic organic sulfonic acid product gives *two-way* control over pitch problems growing out of green or unaged wood:

- by helping to keep pitch dispersed
- by absorbing pitch physically

Before pitch troubles start this season, why not clip the handy coupon below for full Mertanol 7L information? Mertanol: Reg. U. S. Pat. Off.

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Congress Opens Bids For Second Quarter

(Continued from page 7)

width 48 ins.

Paper Corp. of America	.162c
Allied Paper Mills	.099c
Paper Corp. of U. S.	.1293c

Machine-Finish Book End Paper

No. 18—40,000 lbs., 25x38—160; flat, cut 38x50 in.

Paper Corp. of America	.149c
Mead Sales Co.	.104c
Walker, Goulard, Plehn Co.	.1425c
Paper Corp. of U. S.	.1275c

Offset Book

No. 19—350,000 lbs., 25x38—80; flat, cut any size, min. width 24 ins., max. width 48 ins., the grain to run lengthwise of the sheet.

Paper Corp. of America	.1545c
Walker, Goulard, Plehn Co.	.155c
Allied Paper Mills	.13083c
Barton, Duer & Koch Paper Co.	.1183c
Stanford Paper Co.	.1579c
Central Ohio Paper (240,000 pounds only.)	.1339c
Paper Corp. of U. S.	.1333c
Bulkley Dunton	.155c

No. 20—100,000 lbs., 25x38—100; flat, cut any size, min. width 24 ins. max. width 48 ins., the grain to run lengthwise of the sheet.

Paper Corp. of America	.151c
Walker, Goulard, Plehn Co.	.1475c
Allied Paper Mills	.1148c
Barton, Duer & Koch Paper Co.	.1078c
Mudge Paper Co.	.1149c
Stanford Paper Co.	.1375c
R. P. Andrews Paper Co.	.136c
Paper Corp. of U. S.	.1175c

Offset Poster

No. 21—40,000 lbs., 25x38—120; flat, cut any size, min. width 24 ins., max. width 48 ins., the grain to run lengthwise of the sheet.

Paper Corp. of America	.1495c
Walker, Goulard, Plehn Co.	.1475c
Stanford Paper Co.	.1278c
Paper Corp. of U. S.	.128c

Antique Book

No. 22—40,000 lbs., 25x38—90 and 120; flat, cut 32x42, 33x43, and 38x50 ins.

Paper Corp. of America (90 pounds.)	.155c
Paper Corp. of America (120 pounds.)	.1495c
Mead Sales Co.	.1089c
Walker, Goulard, Plehn Co. (90 pounds.)	.15c
Walker, Goulard, Plehn Co. (120 pounds.)	.1375c
Paper Corp. of U. S.	.1246c

Supercalendered Book

No. 33—200,000 lbs., 25x38—90; flat, cut any size, min. width 24 ins., max. width 48 ins.

No. 34—50,000 lbs., 25x38—90; rolls, 28½ and 38 ins. wide (3-inch fiber cores).

Mead Sales Co.	.1055c
R. P. Andrews Paper Co.	.0885c

Coated Book

No. 37—175,000 lbs., 25x38—100; flat, cut any size, min. width 24 ins., max. width 48 ins.

Barton, Duer & Koch Paper Co.	.113c

No. 40—350,000 lbs., 25x38—140; flat, cut 32x42, 38x48, 39x50, and 41x52 ins.; the grain to run lengthwise of the sheet.

Consolidated Water Power & Paper Co.	.10985c
Allied Paper Mills	.12789c

Litho Coated Book

No. 41—40,000 lbs., 25x38—40; flat, cut 32x42, 38x48, 39x50, and 41x52 ins., the grain to run lengthwise of the sheet.

Allied Paper Mills	.13818c

Chemical Wood Mimeograph, White and Colored

No. 45—250,000 lbs., white, No. 40; flat, cut 28½x34½, 32½x42½, and 38x48½ ins. Grain: Size 28½x34½ ins. to run the 28½ in. way; size 32½x42½ to run the 42½ in. way; size 38x48½ ins. to run the 38 in. way.

Collins Manufacturing Co.	.1575c
Paper Corp. of America	.1495c
Mead Sales Co.	.1172c
Walker, Goulard, Plehn Co.	.1375c
Barton, Duer & Koch Paper Co.	.1165c
R. P. Andrews Paper Co.	.1019c
Paper Corp. of U. S.	.1297c

No. 46—55,000 lbs., blue, buff, green, pink, and yellow, No. 40; flact, cut 32½x42½, and 38x48½ ins., Grain: Size 32½x42½ to run the 42½ in. way; size 38x48½ ins. to run the 38 in. way. Min. order, one color, 10,000 lbs.

Collins Manufacturing Co.	.1589c
Cauthorne Paper Co.	.146c
Paper Corp. of America	.1545c
Paper Corp. of U. S.	.1791c

25% Mimeograph

No. 47—50,000 lbs., No. 40; flat, cut 28½x34½, 32½x42½, 34½x44, 38x48½, and 40½x42½ ins. Grain: Size 28½x34½ ins. to run the 28½ in. way; sizes 32½x42½ and 40½x42½ ins. to run the 42½ in. way; size 38x48½ ins. to run the 38 in. way.

Howard Paper Mills, Aetna Paper Co. Division	.1575c
Collins Manufacturing Co.	.16c
Old Dominion Paper Co.	.146c
Cauthorne Paper Co.	.158c
Wilcox, Walter, Furlong Paper Co.	.179c
Whitaker Paper Co.	.15c
Central Ohio Paper Co.	.1815c

Duplicator Copy Paper, Liquid Process, White and Colored

No. 48—250,000 lbs., White, No. 40; flat, cut 32x42 and 34x44; the grain to run lengthwise of the sheet.

Paper Corp. of America	.152c
D. L. Ward Paper Co.	.1525c
Stanford Paper Co.	.1525c
Paper Corp. of U. S.	.1395c

No. 49—20,000 lbs., pink, yellow, green, and blue; No. 40; flat, cut 32x42 and 34x44 ins.; the grain to run lengthwise of the sheet.

Paper Corp. of America	.157c
D. L. Ward Paper Co.	.16c
Stanford Paper Co.	.16c

Blue U S M O Safety Writing

No. 50—100,000 lbs., No. 32; rolls, 22 ins. wide, 24 ins. in diameter (3-inch fiber cores).

R. P. Andrews Paper Co.	.197c

Chemical Wood Writing, White and Colored

No. 52—80,000 lbs., No. 26; flat, cut any size, min. width 21 ins., max. width 48 ins.

Walker, Goulard, Plehn Co.	.1725c
Whitaker Paper Co.	.155c
Paper Corp. of U. S.	.1495c
Bulkley Dunton	.1507c

No. 53—1,000,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Collins Manufacturing Co. (500,000 pounds only.)	.1575c
Cauthorne Paper Co. (500,000 pounds only.)	.1435c
Cauthorne Paper Co. (130,000 pounds only.)	.1355c
Paper Corp. of America	.1545c
Quaker City Paper Co. (200,000 pounds only.)	.1435c
Walker, Goulard, Plehn Co.	.159c
Barton, Duer & Koch Paper Co. (300,000 pounds only.)	.1435c
Stanford Paper Co. (200,000 pounds only.)	.1318c
R. P. Andrews Paper Co. (600,000 pounds only.)	.1107c
Paper Corp. of U. S. (400,000 pounds only.)	.1435c

No. 54—850,000 lbs., white, No. 40, flat, cut any size, min. width 21 ins., max. width 48 ins.

Collins Manufacturing Co. (400,000 pounds only.)	.155c
Paper Corp. of America	.1495c
Walker, Goulard, Plehn Co.	.1546c
Barton, Duer & Koch Paper Co. (400,000 pounds only.)	.1195c
Paper Corp. of U. S. (400,000 pounds only.)	.1367c

No. 55—400,000 lbs., white, No. 32; rolls, min. width 16 ins., max. width, 48 ins. (3-inch fiber cores).

Collins Manufacturing Co.	.155c
Cauthorne Paper Co. (500,000 pounds only.)	.125c
Paper Corp. of America	.147c
Mead Sales Co.	.1128c
Walker, Goulard, Plehn Co.	.1412c
R. P. Andrews Paper Co.	.1005c
Paper Corp. of U. S. (200,000 pounds only.)	.1295c

No. 56—340,000 lbs., white, No. 40; rolls, min. width 16 ins., max. width 48 ins. (3-inch fiber cores).

Collins Manufacturing Co.	.1525c
Paper Corp. of America	.1425c
Mead Sales Co.	.1069c
Walker, Goulard, Plehn Co.	.1368c
Barton, Duer & Koch Paper Co.	.109c
R. P. Andrews Paper Co.	.0946c
Paper Corp. of U. S.	.1241c

No. 57—20,000 lbs., blue, buff, green, pink, salmon, and yellow; No. 26; flat, cut any size, min. width 21 ins., max. width 48 ins.

Collins Manufacturing Co.	.24c
Bulkley Dunton	.1607c

No. 58—450,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, Nos. 32 and 40; flat, cut any size, min. width 21 ins., max. width 48 ins. Min. order, one color, 10,000 lbs.

Collins Manufacturing Co. (32 pounds.)	.1595c
Collins Manufacturing Co. (40 pounds.)	.1545c
Marquette Paper Co. (32 pounds.)	.1505c
Marquette Paper Co. (40 pounds. 200,000 pounds only.)	.1445c
Cauthorne Paper Co.	.1474c
Wilcox, Walter, Furlong Paper Co. (40 pounds.)	.15c
Wilcox, Walter, Furlong Paper Co. (32 pounds.)	.154c
Paper Corp. of America (32 pounds.)	.1595c
Paper Corp. of America (40 pounds.)	.1545c
Whitaker Paper Co. (32 pounds.)	.155c
Whitaker Paper Co. (40 pounds.)	.154c
Paper Corp. of U. S.	.1445c

No. 59—140,000 lbs., blue, buff, green, pink, salmon, and yellow, No. 32; rolls, 38 in. (3-inch fiber cores).

Collins Manufacturing Co.	.1585c
Paper Corp. of America	.152c
Whitaker Paper Co.	.141c
Paper Corp. of U. S.	.1339c
Bulkley Dunton	.144c

25% Lithograph-Finish Map

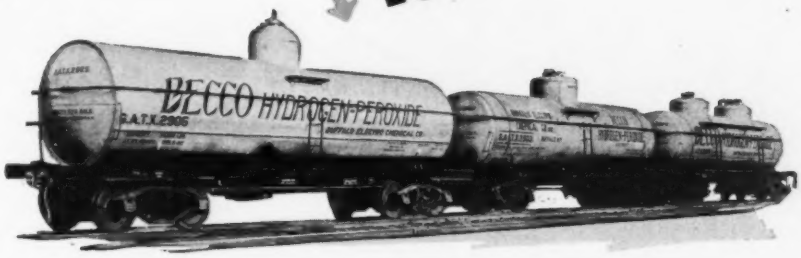
No. 63—10,000 lbs., No. 40; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

Howard Paper Mills, Aetna Paper Co. Division	.1897c
Mudge Paper Co.	.1748c
Stanford Paper Co.	.1795c

No. 64—20,000 lbs., Nos. 32 and 40; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

Howard Paper Mills, Aetna Paper Co. Division	.2027c

From single carboys... to a fleet of tank cars



● Such is the impressive increase in the use of Becco Hydrogen Peroxide over the years. There are reasons for this growth, of course! Outstanding among them are:

- Becco Hydrogen Peroxide meets the specific requirements of industry.
- Becco Hydrogen Peroxide is quickly and easily pumped to the point of use from your storage tanks.
- Becco research has been active in the uses and applications of bleaching in the paper and pulp industry.

BECCO'S engineers and chemists are prepared to assist you with your bleaching problems—how you may be able to obtain finest results under specific conditions of your operations. Write today!

BECCO SALES CORPORATION

AGENTS FOR BUFFALO ELECTRO-CHEMICAL COMPANY, INC.

BUFFALO 7, NEW YORK

New York Boston Philadelphia Chicago Charlotte

Old Dominion Paper Co. ..... .17998c
Old Dominion Paper Co. ..... .18498c
Franklin Research Co. ..... .1858c
Barton, Duer & Koch Paper Co. .... .188c
Mudge Paper Co. (32 pounds.) .... .18689c
Mudge Paper Co. (40 pounds.) .... .18089c
Paper Corp. of U. S. ..... .2089c

No. 65—40,000 lbs., Nos. 48 and 56; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

Howard Paper Mills, Aetna Division .2027c
Old Dominion Paper Co. ..... .17998c
Franklin Research Co. ..... .1812c
Barton, Duer & Koch Paper Co. .... .188c
Stanford Paper Co. ..... .1789c
Graham Paper Co. ..... .2174c
Paper Corp. of U. S. ..... .2089c

High Wet Strength Map

No. 68—275,000 lbs., No. 48; flat, cut any size, min. width 22 ins., max. width 48 ins.; the grain to run lengthwise of the sheet.

Barton, Duer & Koch Paper Co. (150,000 pounds only.) ..... .193c
Mudge Paper Co. (175,000 pounds only.) ..... .2211c
Stanford Paper Co. ..... .1949c
R. P. Andrews Paper Co. ..... .2158c
Whitaker Paper Co. (90,000 pounds only.) ..... .1875c
John N. McNeil, Inc. (100,000 pounds only.) ..... .2211c
Paper Corp. of U. S. ..... .1959c

No. 69—20,000 lbs., No. 72; flat, cut any size, min. width 22 ins., max. width 46 ins.; the grain to run lengthwise of the sheet.

Franklin Research Co. ..... .2075c
Barton, Duer & Koch Paper Co. .... .2154c
Stanford Paper Co. ..... .2158c
Frank Parsons Paper Co. ..... .2115c
Graham Paper Co. ..... .2118c

Chemical Wood Manifold, White and Colored

No. 72—60,000 lbs., white, No. 18; flat, cut 21x32, 28x34, 32x42, and 34x44 ins.

Old Dominion Paper Co. ..... .18179c
R. P. Andrews Paper Co. ..... .1854c
Frank Parsons Paper Co. ..... .1777c
Paper Corp. of U. S. ..... .169c

No. 74—40,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 18; flat, cut 28x34, 32x42, and 34x44 ins. Min. order, one color, 5,000 lbs.

Old Dominion Paper Co. ..... .19244c
Wilcox, Walter Furlong Paper Co. .. .181c
R. P. Andrews Paper Co. ..... .1964c
Frank Parsons Paper Co. ..... .1888c

50% Manifold, White and Colored

No. 76—20,000 lbs., white, No. 18; flat, cut 21x32, 28x34, 32x42, and 34x44 ins.

Marquette Paper Co. ..... .2625c
Old Dominion Paper Co. ..... .26244c
Walker, Goulard, Plehn Paper Co. .. .2576c
Barton, Duer & Koch Paper Co. .... .2599c
Stanford Paper Co. ..... .2597c
R. P. Andrews Paper Co. ..... .2665c
Whitaker Paper Co. ..... .259c
Paper Corp. of U. S. ..... .2842c

No. 78—15,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 18; flat, cut 28x34 and 34x44 ins. Min. order, one color, 5,000 lbs.

Old Dominion Paper Co. ..... .27484c
Walker, Goulard, Plehn Co. ..... .2606c
Barton, Duer & Koch Paper Co. .... .2748c
Mudge Paper Co. ..... .2696c
R. P. Andrews Paper Co. ..... .2765c
Whitaker Paper Co. ..... .2725c
Paper Corp. of U. S. ..... .2826c

50% White Glazed Manifold

No. 85—40,000 lbs., No. 16; flat, cut 32x42 ins. Min. order 20,000 lbs.

Butler Co. ..... .2747c
Walker, Goulard, Plehn Paper Co. .. .2796c
Barton, Duer & Koch Paper Co. .... .3168c
Stanford Paper Co. ..... .3282c
R. P. Andrews Paper Co. ..... .2825c
Whitaker Paper Co. ..... .345c
Paper Corp. of U. S. ..... .3115c

Chemical Wood Bond, White and Colored

No. 102—100,000 lbs., No. 40; flat, cut any size, min. width 21 ins., max. width 38 ins.

Collins Manufacturing Co. ..... .159c
Paper Corp. of America ..... .1495c
Walker, Goulard, Plehn Paper Co. .. .14c

No. 103—100,000 lbs., blue, No. 32; flat, cut 32x42 ins.

Collins Manufacturing Co. ..... .1678c
Paper Corp. of America ..... .1545c
Walker, Goulard, Plehn Paper Co. .. .147c

25% Bond, White and Colored

No. 105—50,000 lbs., No. 26; flat, cut any size, min. width 21 ins., max. width 48 ins.

Howard Paper Mills, Aetna Division .2217c
Walker, Goulard, Plehn Paper Co. .. .215c
Barton, Duer & Koch Paper Co. .... .189c
Mudge Paper Co. ..... .1998c
Whitaker Paper Co. ..... .2264c
Paper Corp. of U. S. ..... .2241c

No. 106—50,000 lbs., white, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Howard Paper Mills, Aetna Division .1807c
Collins Manufacturing Co. ..... .179c
Old Dominion Paper Co. ..... .17248c
Walker, Goulard, Plehn Paper Co. .. .1797c
Barton, Duer & Koch Paper Co. .... .1965c
Stanford Paper Co. ..... .1709c
Whitaker Paper Co. ..... .1766c
Paper Corp. of U. S. ..... .1912c

No. 107—50,000 lbs., No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Howard Paper Mills, Aetna Division .1807c
Collins Manufacturing Co. ..... .179c
Old Dominion Paper Co. ..... .17248c
Walker, Goulard, Plehn Paper Co. .. .1797c
Barton, Duer & Koch Paper Co. .... .1965c
Stanford Paper Co. ..... .1709c
Whitaker Paper Co. ..... .1766c
Paper Corp. of U. S. ..... .1912c

No. 109—300,000 lbs., No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.

Howard Paper Mills Aetna Division .1707c
Collins Manufacturing Co. ..... .174c
Old Dominion Paper Co. ..... .167389c
Butler Co. (100,000 pounds.) ..... .1636c
Stanford Paper Co. (100,000 pounds.) .1636c
R. P. Andrews Paper Co. ..... .1745c
Whitaker Paper Co. ..... .1766c
John N. McNeil, Inc. (100,000 pounds.) ..... .1636c
Paper Corp. of U. S. ..... .1791c

No. 113—100,000 lbs., blue, buff, cherry, green, pink, salmon and yellow, No. 32; flat, cut any size, min. width 21 ins., max. width 48 ins.

Howard Paper Mills Aetna Division .1877c
Collins Manufacturing Co. ..... .1849c
Butler Co. ..... .1779c
Barton, Duer & Koch Paper Co. .... .1767c
Whitaker Paper Co. ..... .2062c

No. 114—40,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 40; flat, cut any size, min. width 21 ins., max. width 48 ins.

Howard Paper Mills, Aetna Division .1777c
Collins Manufacturing Co. 1789c
Whitaker Paper Co. ..... .201c
John N. McNeil, Inc. ..... .1736c

Chemical Wood White Ledger

No. 150—80,000 lbs., No. 48; flat, cut any size, min. width 17 ins., max. width 48 ins.

Collins Manufacturing Co. ..... .155c
Paper Corp. of America ..... .149c
Walker, Goulard, Plehn Paper Co. .. .14c

No. 151—20,000 lbs., No. 64; flat, cut any size, min. width 17 ins., max. width 48 ins.

Collins Manufacturing Co. ..... .155c
Paper Corp. of America ..... .149c
Walker, Goulard, Plehn Paper Co. .. .14c

No. 153—150,000 lbs., white, No. 88; flat, cut any size, min. width 17 ins., max. width 48 ins.

Collins Manufacturing Co. ..... .155c
Paper Corp. of America ..... .159c
Walker, Goulard, Plehn Paper Co. .. .1325c

25% Ledger, White and Colored

No. 154—40,000 lbs., white, No. 48; flat, cut 28x34, 32x42, 34x44, and 38x48 ins. Min. order, 5,000 lbs.

Howard Paper Mills, Aetna Division .1807c
Collins Manufacturing Co. ..... .1769c
Old Dominion Paper Co. ..... .17664c
Walker, Goulard, Plehn Paper Co. .. .1765c
Barton, Duer & Koch Paper Co. .... .1772c
Stanford Paper Co. ..... .192c
Whitaker Paper Co. ..... .1953c
John N. McNeil, Inc. ..... .1728c
Paper Corp. of U. S. ..... .1912c

No. 156—40,000 lbs., white, No. 88; flat, cut 28x34, 32x42, 34x44, and 38x48 ins. Min. order 5,000 lbs.

Howard Paper Mills, Aetna Division .1807c
Collins Manufacturing Co. ..... .1769c
Old Dominion Paper Co. ..... .17664c
Walker, Goulard, Plehn Paper Co. .. .1735c
Barton, Duer & Koch Paper Co. .... .179c
Stanford Paper Co. ..... .192c
John N. McNeil, Inc. ..... .1772c
Paper Corp. of U. S. ..... .1912c

No. 157—30,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 64; flat, cut 34x44 ins. Min. order, one color, 5,000 lbs.

Howard Paper Mills, Aetna Division .1877c
Collins Manufacturing Co. ..... .1865c
Old Dominion Paper Co. ..... .18798c
Walker, Goulard, Plehn Paper Co. .. .1795c
Stanford Paper Co. ..... .1773c
Paper Corp. of U. S. ..... .1981c

No. 158—40,000 lbs., blue, buff, cherry, green, pink, salmon, and yellow, No. 88; flat, cut 34x44 ins. Min. order, one color, 5,000 lbs.

Howard Paper Mills, Aetna Division .1877c
Collins Manufacturing Co. ..... .1865c
Old Dominion Paper Co. ..... .18798c
Walker, Goulard, Plehn Paper Co. .. .1785c
Stanford Paper Co. ..... .1819c
Paper Corp. of U. S. ..... .1981c

100% White Ledger

No. 177—20,000 lbs., No. 64; flat, cut 28x34 ins. Min. order, 5,000 lbs.

Barton, Duer & Koch Paper Co. .... .3168c
Mudge Paper Co. ..... .2988c
R. P. Andrews Paper Co. ..... .3088c

50% Index, White and Colored

No. 191—60,000 lbs., blue, buff, cherry, fawn, green, pink, salmon, and yellow; 25½x30½—220 and 280; flat, cut 34x44 ins., with projecting colored-paper marker between each 100 sheets. Min. order, one color, one weight, 5,000 lbs.

Howard Paper Mills, Aetna Division .1997c
Collins Manufacturing Co. ..... .2025c
Walker, Goulard, Plehn Paper Co. .. .213c
Barton, Duer & Koch Paper Co. .... .1997c
R. P. Andrews Paper Co. (220 Lb. only.) ..... .1925c
Whitaker Paper Co. ..... .1977c
Paper Corp. of U. S. ..... .2131c

100% White Index

No. 196—40,000 lbs., 25½x30½—250; flat, cut 20¼x30 ins.

Colins Manufacturing Co. ..... .3089c
Barton, Duer & Koch Paper Co. .... .3069c
Stanford Paper Co. ..... .3085c
R. P. Andrews Paper Co. ..... .3088c
Paper Corp. of U. S. ..... .316c

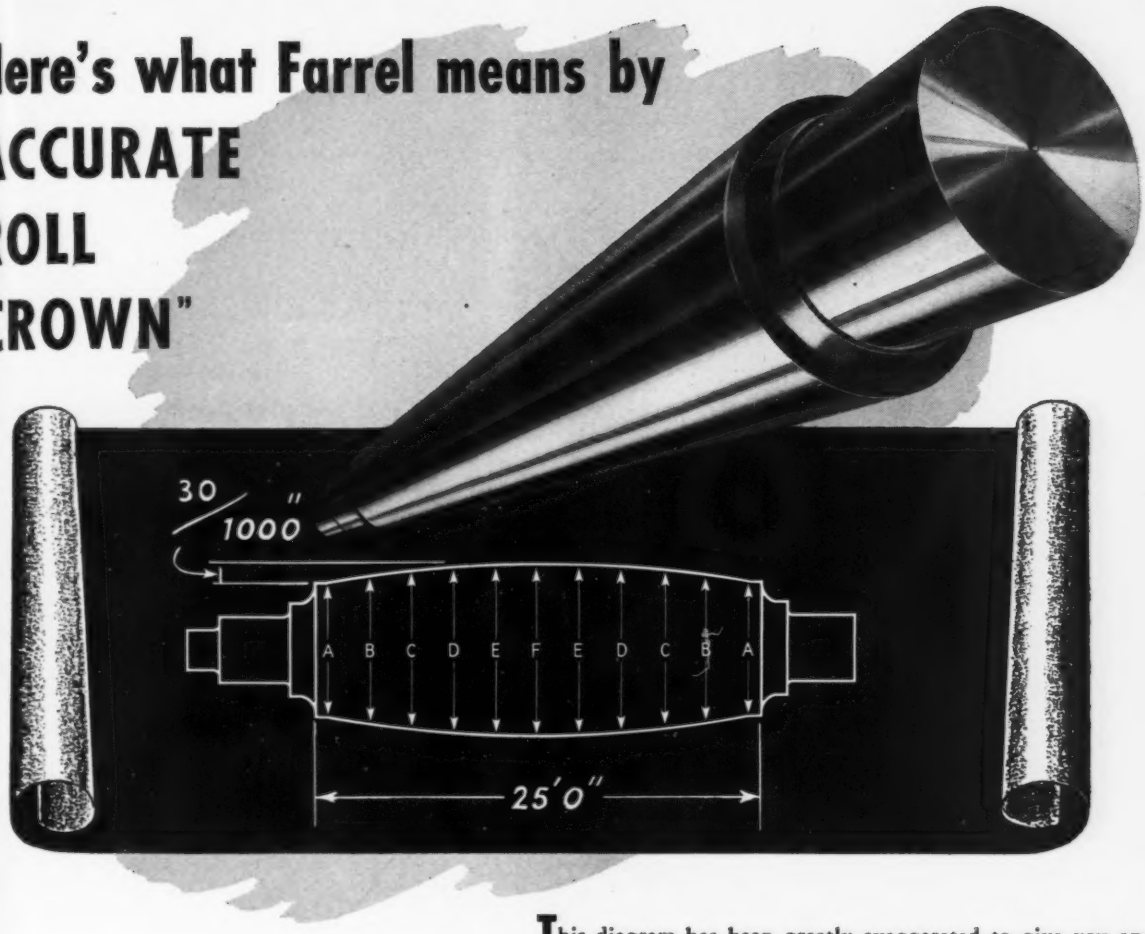
Antique-Finish Cover, White and Colored

No. 202—40,000 lbs., 20x26—100; flat, cut 25¼x39 ins., with projecting colored-paper marker between each 500 sheets.

Marquette Paper Co. ..... .1325c
Paper Corp. of America ..... .147c
R. P. Andrews Paper Co. ..... .1324c

No. 203—50,000 lbs., 20x26—100; blue, buff, dawn, quaker drab, terra cotta, gray, brown, green, gobelin

Here's what Farrel means by "ACCURATE ROLL CROWN"



This diagram has been greatly exaggerated to give you an idea of the precision of crown you can expect in a Farrel calender roll.

It shows how a crown of sixty thousandths of an inch—the amount calculated to be necessary in this case—is distributed along the true deflection curve from A to F. This precisely graduated crown, exactly symmetrical on both halves of the roll, assures correct compensation for the pressure of the rolls above it in the calender stack.

Farrel has developed the specialized skill and equipment required consistently to produce accurately shaped rolls, over nearly a century of making rolls of all types and sizes. The Farrel two-wheel, swing-rest roll grinder with the Farrel automatic crowning device, which unerringly produces the correct shape and amount of crown; and Farrel roll calipers for precise checking of dimensions, are two pieces of equipment used in the *world's largest specialty roll shop* at Ansonia to produce accurately crowned rolls.

Write for further details on rolls or on any of the other equipment listed on this page. FB-382

FARREL PAPER MILL MACHINERY

ROLLS: Chilled Iron, Dry Sand, Meehanite, Alloy Iron, Steel, Chromium Plated
FOR: Calender Stacks
Board Calenders
Super Calenders
Glassine Calenders
Friction Rolls
Breaker Rolls
Smoothing Rolls
Coating Rolls
Creping Rolls
Plater Rolls
Cutting Rolls
Paraffining and Waxing Rolls
Saturating Rolls
Silicating Rolls
Miscellaneous Special Purposes
CALENDERS: Paper and Board
GRINDING MACHINES: Roll
CALIPERS: Roll
GEARS, CUT: Spur, Single and Double Helical (Farrel-Sykes Continuous Tooth Type)
SPEED REDUCING GEAR UNITS
SPEED INCREASING GEAR UNITS
FLEXIBLE COUPLINGS

FARREL-BIRMINGHAM COMPANY, INC.
ANSONIA, CONN.

Plants: Ansonia and Derby, Conn., Buffalo, N. Y.
Sales Offices: Ansonia, Buffalo, New York, Boston, Pittsburgh, Akron, Chicago, Los Angeles, Tulsa, Houston

Farrel-Birmingham

blue, granite, tea, and yellow; flat, cut 25¼x39 ins., with projecting colored-paper marker between each 500 sheets; min. order, one color, 5,000 lbs.

Paper Corp. of America	.152c
R. P. Andrews Paper Co.	.1324c
Whitaker Paper Co.	.1324c

50% Laid Cover, Colored

No. 206—10,000 lbs., blue, cream, white, gray, and green; 20x26—130 and 200; flat, cut 25¼x39 and 28x41 ins. with projecting colored-paper marker between each 500 sheets; min. order, one color, 2,000 lbs.

R. P. Andrews Paper Co.	.1948c

No. 2 Kraft

No. 217—100,000 lbs., 24x36—80 to 160; flat, cut any size, in wrapped bundles.

No. 218—100,000 lbs., 24x36—80 to 160; cut any size, folded (25 sheets per fold), in wrapped bundles.

White Gummed

No. 252—150,000 sheets, No. 40; flat, cut 22x34 ins., min. order 25,000 sheets.

Old Dominion Paper Co. (Per M Sheets.)	$23.098
Butler Co. (Per M Sheets.)	$23.625
Mudge Paper Co. (Per M Sheets.)	$24.10
Stanford Paper Co. (Per M Sheets.)	$22.35
R. P. Andrews Paper Co. (Per M Sheets.)	$22.66
Graham Paper Co. (Per M Sheets.)	$23.18
Paper Corp. of U. S. (Per M Sheets.)	$23.165

High-Finish Red Sulphite

No. 265—5,000 lbs., 24x36—320; flat, cut 38x48 ins., in wrapped bundles. Min. order 5,000 lbs.

R. P. Andrews Paper Co.	.1348c
Paper Corp. of U. S.	.1654c

Jute Tag

No. 280—50,000 lbs., 22½x28½—200 and 280; flat, cut 34x44 ins., min. order, one weight, 10,000 lbs.

R. P. Andrews Paper Co.	.1555c
Paper Corp. of U. S. (200 lb.)	.1875c
Paper Corp. of U. S. (280 lb.)	.18c

Railroad Board, White and Colored

No. 302—15,000 lbs.; flat, 22x34 ins., 8-ply, each 100 sheets fully banded. Min. order, 5,000 sheets.

Old Dominion Paper Co. (Per M Sheets.)	$78.574
Barton, Duer & Koch Paper Co. (Per M Sheets.)	$80.27
Stanford Paper Co. (Per M Sheets.)	$78.74
Bulkley Dunton (Per M Sheets—skids)	$77.33
Bulkley Dunton (Per M Sheets—cases)	$80.27

Wood Cardboard, Colored

No. 306—200,000 lbs., buff, 22½x-28½—150; rolls, 20 ins. wide (3-inch fiber cores).

Walker, Goulard, Plehn Paper Co.	.1268c
Barton, Duer & Koch Paper Co.	.126c

No. 308—10,000 lbs., melon, 22½x-28½—184; flat, cut 20x30 ins., in wrapped bundles with projecting colored-paper marker between each 100 sheets.

Walker, Goulard, Plehn Paper Co.	.1375c

No. 309—120,000 lbs., blue, buff, gray, green, melon, pink and yellow; 22½x28½—184; rolls, 20 ins. wide (3-inch fiber cores).

Walker, Goulard, Plehn Paper Co.	.1318c

Chemical Wood Tan Board

No. 310—20,000 lbs., 22½x28½—200; flat, cut 25x38, 28x38, and 34x44 ins.

R. P. Andrews Paper Co.	.1440c
Paper Corp. of U. S.	.162c

United States Postal Card Paper

No. 325—3,500,000 lbs., 22½x28½—188; rolls, 33 ins. wide, 36 ins. diameter (6-inch iron or metal capped returnable fiber cores).

Walker, Goulard, Plehn Paper Co. (Total tonnage Lots 325, 326 & 327, 1,000,000 pounds.)	.12c
Whitaker Paper Co. (Total tonnage Lots 325, 326 & 327, 3,000,000 pounds.)	.0832c

No. 326—3,500,000 lbs., 22½x28½—188; rolls, 33 ins. wide, 36 ins, in diameter (6-inch iron or metal capped returnable fiber cores).

Walker, Goulard, Plehn Paper Co. (Total tonnage Lots 325, 326 & 327, 1,000,000 pounds.)	.12c
Whitaker Paper Co. (Total tonnage Lots 325, 326 & 327, 3,000,000 pounds.)	.0832c

No. 327—3,000,000 lbs., 22½x28½—288; rolls, 22 or 33 ins. wide, and 36 ins. in diameter (6-inch iron or metal capped returnable fiber cores).

Marquette Paper Co. (400,000 pounds only.)	.116c
Walker, Goulard, Plehn Paper Co. (Total tonnage Lots 325, 326 & 327, 1,000,000 pounds.)	.12c
R. P. Andrews Paper Co. (2,400,000 pounds only.)	.0840c
Whitaker Paper Co. (Total tonnage Lots 325, 326 & 327, 3,000,000 pounds.)	.0832c

Pressboard, Colored

No. 352—10,000 lbs.; flat, cut 30x36 ins., thickness .0300 inch. Min. order, 5,000 sheets.

R. P. Andrews Paper Co. (Per C. Sheets.)	$34.71

Newsboard

No. 360—80,000 lbs., 26x38; No. 100; flat, cut any size, min. 21x32 ins., max. 40x52½ ins. (To be trimmed square on four sides.)

Old Dominion Paper Co.	.04994c
Mudge Paper Co.	.0543c
R. P. Andrews Paper Co.	.499c
Whitaker Paper Co.	.04974c
Paper Corp. of U. S.	.0507c

Chestnut Cover Board

No. 369—50,000 lbs.; flat; to trim 25x30 inches, Nos. 17, 19, 21, 25, 31, and 41.

Mead Sales Co.	.056c

No. 370—60,000 lbs.; flat, to trim 25¾x37¾ ins., Nos. 16 19, 24, and 31.

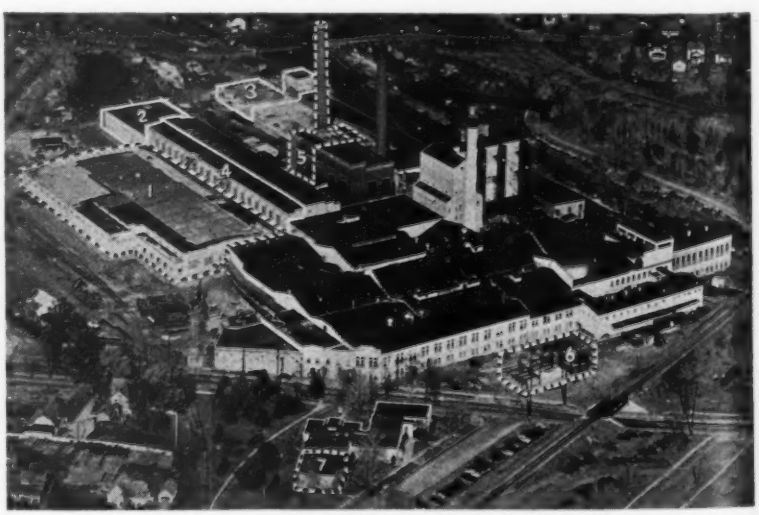
Mead Sales Co.	.05975c

Gypsum Denies Effect Of High Court Ruling

BUFFALO, N. Y.—Commenting on a Supreme Court decision that the National Gypsum Company and six other companies violated the Sherman Anti-Trust Act by using patent-license agreements which contain price-fixing provisions, the National Gypsum Company this week said the finding "has no bearing on present operations nor have the price clauses referred to been in effect for several years."

"The price agreements," the company said, "were stopped before the war by voluntary action of the companies. The margin of profit of the National Gypsum Company has been reduced, rather than increased, since the war, and the products generally have had smaller price increases as compared to other building products or as compared to increases in other industries.

"National Gypsum's prices have increased less than 30 percent since the war in the face of labor-rate and material price increases of over 100 percent."

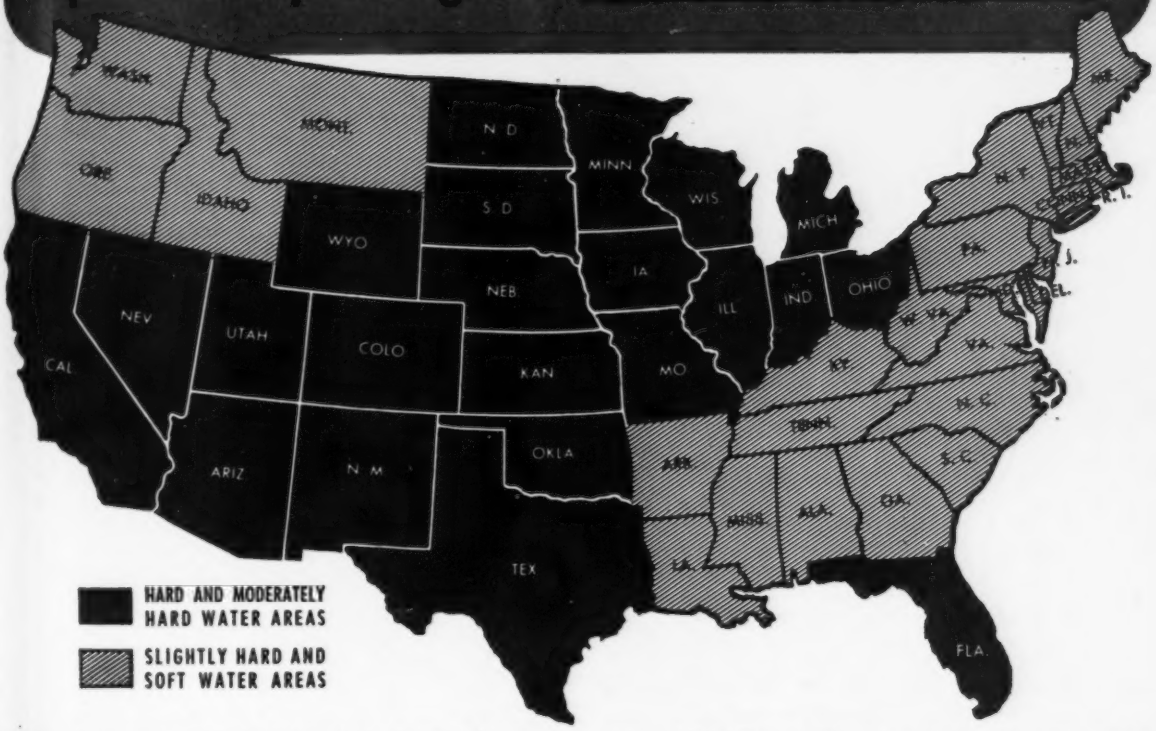


This aerial view, taken from an altitude of about 1000 feet, shows new construction at the main plant of the Company with log piles and booms in the background. Major units of new construction are located in outline and numbered for identification. 1. New finishing room—train shed and truck loading docks. 2. New warehouse. 3. Water filtration plant. 4. Location of new No. 7 paper machine. 5. Boiler house addition and new stack. 6. Yeast plant. 7. Addition to main office building.

Announcing NOPCO KFH

A NEW VERSION OF NOPCO KF*

specifically designed for Hardwater Areas



Where does your mill fit into this picture? If it is located in any of the hard or moderately hard water areas shown on this map, then NOPCO KFH — new *hard-water* version of NOPCO KF — can definitely help you to solve some of the tougher problems of paper production. From Nopco KFH you'll get the same unsurpassed foam-killing effectiveness that has long distinguished Nopco KF in paper mills throughout the world. As an *important plus,* you'll also find Nopco KFH *more readily dispersible,* resulting in easier, speedier preparation of stock emulsions.

The same quick action, dependability and economy. Like NOPCO KF, NOPCO KFH needs but minutes to drive foam from the head-box, clear bubbles from the wire. Like KF, KFH improves sheet formation even at increased machine speeds, with better than 75% elimination of thin spots. What's more, Nopco KFH is proving as effective as Nopco KF in providing these advantages to mills in *soft-water* areas. For this reason—and because of its *greater ease of handling*—mill operators in soft-water regions will find Nopco KFH well worth investigating.

NOPCO KFH, in short, is another outstanding product added to an already versatile and successful line of NOPCO products — all acknowledged leaders in their field. NOPCO KFH is a further example of Nopco's continuing program of research, whose aim is to provide the Paper Industry with the most advanced developments in processing chemicals.

See what this *new chemical substance* — expressly formulated to aid sheet formation and eliminate foam in hard-water areas — can do in *your* mill. Why not include a barrel or two of NOPCO KFH in your next order for regular NOPCO KF?

NOPCO CHEMICAL COMPANY, Harrison, N. J.

formerly National Oil Products Company

Branches: Boston • Chicago • Cedartown, Ga. • Richmond, Calif.

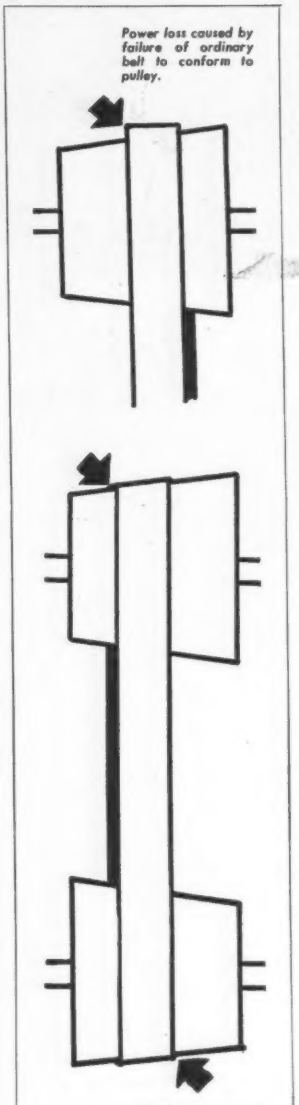
FOR KF PERFORMANCE IN HARD WATER

*REG. U.S. PAT. OFF.

NOPCO KFH

NOPCO TRADEMARK EVOLVED THRU RESEARCH

An Affiliate of the American Pulp and Paper Mill Superintendents Association



FLEXOCONE

(PATENTED)

. . . the sign of economical paper mill production

WHENEVER a paper mill has *really* studied costs of operation in relation to tons of paper produced—there you will usually find FLEXOCONE

3-PLY LEATHER BELT

Its scientific (patented) construction is specifically designed for cone-pulley drives, where the greatest stress on the belt is in a diagonal, rather than a straight line.

FLEXOCONE increases production, gives more continuous operation through longer belt life, thereby lowering belt cost, maintenance cost and the overall cost per ton of paper produced.

Ask Alexander engineers to specify FLEXOCONE belts to meet the particular conditions of your drives. Send for specification sheets.

FOUNDED 1867

ALEXANDER BROTHERS

406 N. 3rd STREET, PHILADELPHIA 23, PA.

Branch Offices: Chicago • Dallas • Charlotte • New York

DISTRIBUTORS IN PRINCIPAL CITIES

Waxed Paper Institute Elects New Officers

NEW YORK—New chairman of the Executive Committee of the Waxed Paper Institute, elected at the annual meeting of the Institute, February 25, at the Waldorf-Astoria is William P. Patterson, Executive Vice-President of the Specialty Papers Company, Dayton, Ohio. C. C. Sherman, President of the H. P. Smith Paper Company, Chicago, Ill. was elected Vice-Chairman.

Elected to the Executive Committee were John Snyder, Marathon Corporation, Menasha, Wis., Edgar L. Berkley, Waxide Paper Company, Kansas City, Mo., and Louie Kimple, Dixie Wax Paper Company, Dallas, Texas. These three new members replaced Stuart Irvine, Saniwax Paper Company, Kalamazoo, Mich., Karl R. Zimmer, Zimmer Paper Products, Indianapolis, Ind., and Ben F. Lacy, Southern Waxed Paper Company, Atlanta, Ga., whose terms expired.

The main speaker at the annual meeting of the waxed paper industry was the Hon. Lowell B. Mason, Commissioner of the Federal Trade Commission who spoke on the subject "U. S. Federal Trade Commission and Business—Friend or Foe?" Other speakers on the program included W. S. Bondy, Consulting Engineer who talked on "Technical Developments in the Handling of Wax," Loren J. Freund, of the law firm of Kittelle and Lamb, whose subject was "The First Seven Months Under the Taft-Hartley Act," George Lamb, of Kittelle and Lamb who spoke on "The Government Plan of Voluntary Allocations," and Paul Pannier, Waxed Paper Institute who discussed "Ink Classification Devices."

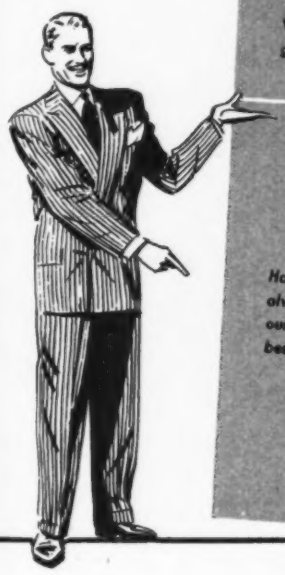
Results of the National Merchandising Program of the Waxed Paper Institute were reviewed by chairman Harold L. Bills, Saniwax Paper Company, Kalamazoo, Mich. and Howard H. Monk, Howard H. Monk and Associates, Rockford, Ill. Annual reports were given by W. P. Patterson, Chairman of the Statistical Committee, B. F. Lacy, Southern Waxed Paper Company, on Credit Group operations, and by Maynard M. Bartley, Rapinwax Paper Company, Minneapolis, Minn., Chairman of the Industrial Relations Committee.

Kalamazoo Superintendents Plan Dinner Dance

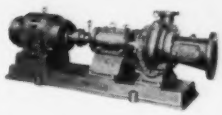
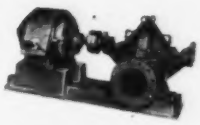
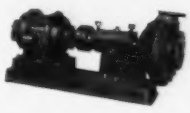
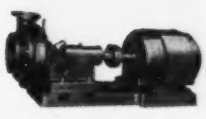
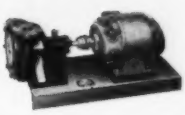
KALAMAZOO—The American Pulp and Paper Mill Superintendents Association, Inc., Michigan Division, will hold its Annual Ladies Night Dinner Dance Saturday Evening, April 17, at the Park-American Hotel. Arthur E. Woollam, representatives of Gould's Pumps will act as toastmaster.

The Allied Trades are sponsoring the Cocktail Hour between 6:00 to 7:00 P.M. in the Green Room.

Let's Take Up YOUR Pumping Problems



Worthington Solves Them with the Specific Pump for Every Paper Processing Job

Questions	Answers	
What's the best stock pump for sulphate, sulphite, soda, ground wood, waste paper, cotton linters, etc.?		An FP pump will handle them at capacities up to 6,000 gpm, heads to 200 ft. and consistencies to 7%.
How about a good white water or fan pump?		Use L and LA pumps for all heads and capacities with consistencies up to 1%.
What's a reliable pump for green or white liquor?		A CG Worthite is the ideal pump for dissolving-tanks, transfer and causticizing.
Handling black liquor is always a big problem at our mill. What pumps are best for its various phases?		For furnace feed of black liquor with suspended cake there's nothing like a CH pump.
		For circulation and transfer of concentrated black liquor at viscosities up to 10,000 ssu, use a CL.
		Black liquor pumping for multiple effect evaporators is best handled with a CG Worthite pump.

The Worthington Centrifugal Pumps shown here are your best answers for the general run of paper processing needs. Acids, bleaches, alum, sizes and other abrasive, corrosive, viscous or volatile liquids are handled efficiently and economically by these and other pumps in the world's most complete line.

Is Your Problem Different?

But perhaps you've met with some entirely new difficulty — either in processing or such general mill service as boiler feed, condensate or fire protection.

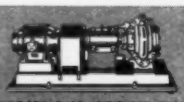
Whatever it may be, take advantage of the longest, most comprehensive experience in the field. Call our nearest district office or write to us direct. You'll get the prompt, expert cooperation on any pumping problem — no matter how unusual or complicated — that proves *there's more worth in Worthington.*

Worthington Pump and Machinery Corporation, Centrifugal Pump Division, Harrison, N. J.

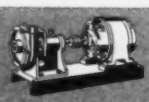
WORTHINGTON

C7-3

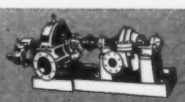
THE WORLD'S LARGEST MANUFACTURER OF PUMPS



CENTRIFUGAL STOCK PUMPS Type FP. Handle all kinds of stock up to 7% consistency. 4 sizes. Capacities up to 6000 GPM; heads up to 200 ft.; speeds up to 1750 RPM.



GENERAL PURPOSE PUMPS Type CF. Open impeller. Single stage. Sizes 1" to 4". Capacities up to 1000 GPM, heads up to 130 ft.; speeds up to 2475 RPM.



BOILER FEED PUMPS Type UB-2. 7 sizes. Capacities up to 1500 GPM; heads up to 1000 ft.; speeds up to 3600 RPM.

earlier operation

earlier profits

when EBASCO does the job

After you have your timber rights under control, call on EBASCO to get your new paper machine in operation at the earliest possible moment.

EBASCO engineers have the experience. They've installed 35 paper machines in the past 20 years. They have the skill and background for everything from original design to complete installation.

Here is a recent accomplishment. Working with an existing paper machine, they recently planned, designed, constructed and installed equipment for a modernized paper mill in only 16 months. Call on them for your next job—expansion, modernization or complete new paper mill.

If you'd like a complete outline of EBASCO's individualized services as engineers, constructors, and business consultants, write for our booklet THE INSIDE STORY OF OUTSIDE HELP. We'll send it to you promptly.

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ENGINEERS · CONSTRUCTORS
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Appraisal · Budget · Business Studies · Consulting Engineering
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Purchasing · Rates & Pricing · Research · Sales & Marketing
Systems & Methods · Taxes · Traffic

Holyoke Votes Under Taft-Hartley Law

HOLYOKE, Mass.—Machinery has been set up for balloting among Holyoke's paper mill unions on the union shop question under the Taft-Hartley law.

At a conference attended by representatives of the paper manufacturing companies and the city's two big paper mill unions—Eagle Lodge and Local 226—the procedure for balloting was outlined by William Shooer, field representative of the National Labor Relations Board.

Shooer was to notify the parties shortly whether the balloting will take place Tuesday and Wednesday, March 30 and 31, or on Tuesday and Wednesday of the following week. NLRB representatives are busy supervising such polls all over New England, and the local dates will depend on that schedule.

Because five mills—American Writing, Carew, Valley, Parsons and Franklin—sign a blanket agreement with the two unions, these mills will form one election unit and a majority of all their eligible employes will be necessary to establish a union shop.

OBITUARY

Dan J. Courtney

APPLETON, Wis.—Dan J. Courtney, 44, superintendent of the Kimberly-Clark Corporation's resin impregnating plant at Kimberly, Wis., was one of twelve persons killed in the crash of a Delta Airlines DC-4 plane Wednesday evening, March 10. He was enroute to Miami, Florida, to meet his wife who had been visiting her sister there.

He was born in Appleton on July 29, 1903, and attended Appleton schools and Lawrence college in this city. Until September, 1942 he was a partner in the J. B. Courtney Woolen Mills. He sold his interests to his brother, Giles. He had been with this firm since 1921. In 1942 and 1943 he was in Milwaukee where he was a flying instructor for the government. He owned his own plane.

In August 1944 he took a position with Kimberly-Clark and in June 1946 he became superintendent of the resin plant at Kimberly.

He was a member of Riverview Country club and the North Shore Golf club, of St. Mary Catholic Congregation, the Knights of Columbus, the Appleton Curling club, and the Appleton Pilots Association. Survivors are the widow, a stepdaughter, a stepson, two sisters and three brothers.

Funeral services were conducted Monday morning, March 15, at St. Mary's church in this city, and burial was in St. Mary's cemetery.

Graphic Arts Group Schedules Meeting

WASHINGTON, D.C.—The Spring Meeting of the Graphic Arts Trade Association Executives will be held at the Mayflower Hotel on April 15, and 16, according to an announcement made by Harold F. Fiedler, President of the GATAE and Executive Secretary of Printing Industries of Philadelphia, Inc.

The meeting will open with an address of welcome by Clarence H. Taylor, President of the Graphic Arts Association of Washington and President of the Graphic Arts Press of that City. The business meeting will include a discussion of public relations; association dues structures and budgets; pension plans; printing engineering, how to attract new members and how to hold old and new members; accounting and related matters, and a last minute summary of the labor situation in the letterpress and lithography industries. In addition, there will be two tours—one to the Bureau of Engraving and another to the United States Government Printing Office.

The Graphic Arts Trade Association is an international organization of professional trade association executives in the graphic arts industry and at present has about 75 members. According to advance reports received, the attendance will be very good with about 55 or 60 members present for the Spring Meeting.

The GATAE holds two meeitngs a year—one in the Spring and the other in the Fall. The purpose of the organization is to keep all trade association executives in the graphic arts industry acquainted with the developments of the industry in the various parts of the country, so that individual secretaries may serve their members and their industry more effectively. All secretaries of associations in the graphic arts industry are cordially invited to attend the meetings and to participate in the informative round table discussions.

Say Erving Again Under AFL Discussion

ERVING, Mass.—Representatives of the American Federation of Labor have been reported meeting with employees of the Erving Paper Mills in and effort to organize a local union among engineers, firemen, maintenance men, oilers and others. No reports on the meetings have been issued, however.

Two years ago there was an unsuccessful attempt to organize the entire factory. On learning that attempts again were underway to unionize the plant, officials of the company posted a directive urging employes to consider their rights for a National Labor Relations Board election before accepting offers of union representatives.

Do you want to make a heat-resistant paper?

NO one today knows how really big the market for heat-resistant paper could really be. In the field of electrical insulation alone it could be tremendous.

This company will never make such a paper because paper-making isn't our business. But supplying the latices, mixes and technical experience that may provide heat resistance where it is wanted—*is* our business.

American Anode latices and mixes are widely used as coatings and impregnants, as adhesives in a wide variety of applications. Most of these uses are a direct result of work done by American Anode development men in our completely equipped development and research laboratory.

Latices and compounded mixes of GEON, HYCAR, neoprene, crude rubber, and GR-S are available. For more information about these modern materials and proper methods of using them, please write Department AD-2, American Anode Inc., 60 Cherry Street, Akron, Ohio.

AMERICAN ANODE

CRUDE AND AMERICAN RUBBER LATICES, WATER CEMENTS AND SUSPENSIONS.

Paper Napkin Group Launches Promotion

ROCKFORD, Ill.—A national campaign to promote paper napkins has been announced by the Paper Napkin Industry following adoption of a general plan at the February 24 Industry-wide meeting in New York City. To inaugurate this program, which is the first of such to be used by the industry, a Committee for Paper Napkin Promotion has been established and Howard H. Monk and Associates of Rockford, Illinois have been retained as advertising and public relations counsel.

Chairman of the Paper Napkin Promotion committee is J. F. Meyer, General Manager, Groff Paper Company, St. Paul, Minn. Other members of the committee are: E. R. Krueger, Paper Art Company, Indianapolis, Ind.; R. W. Bertram, Marathon Corp., Menasha, Wis.; and Sam Lopin, Hudson Pulp and Paper Corp., New York, New York.

Ex-officio members of the Committee are Paper Napkin Association President A. W. Stompe of the Marathon Corp., and Mark Lund, Secretary, Paper Napkin Association.

The first year's program for the Paper Promotion (PNP) will consist primarily of consumer influence in the form of a series of publicity releases to newspapers, radio stations, photo editors, etc. Direct mail advertising, and trade paper advertising will also be used.

A new trademark has been developed featuring the slogan "Paper Napkins at every Meal—Individually Yours, Convenient, Economical." This slogan-emblem will be reproduced on printed literature, in advertising and will be available to the individual members for use on their letterheads, house organs, and other printed materials.

Cleveland Container Local Renews Contract

OGDENSBURG, N. Y.—The existing contract of Ogdensburg local No. 534, A.F. of L., Cleveland Container Company workers, with that company was renewed on the present salary scale at a meeting of the workers and company officials March 3, according to Floyd Van Deusen, A.F. of L. representative for this area. Minor changes relating to vacation plans and working conditions were written into the contract, Mr. Van Deusen said.

Philadelphia Quartz Appoints Barton to Sales Work

PHILADELPHIA — The Philadelphia Quartz Company, manufacturers of silicates of soda has appointed Miller E. Barton to its sales staff. Mr. Barton has assumed duties as a representative in the Midwest territory, residing at 1705 Arlington, Independence, Mo.

Discharged from the Naval Service as a Lieutenant (JG) in 1946, Mr. Barton returned to the University of Missouri where he finished his course and obtained a Bachelor of Arts Degree in Chemistry. After joining the Quartz company, he completed a period of technical and sales training involving the uses of silicates of soda in industry.

Mr. Barton's territory will include the states of Kansas, Missouri, Nebraska, and Iowa. He will assist Clement F. Lovely, senior representative in this area.

January Imports Sag As Newsprint Drops

WASHINGTON — United States imports of paper, paperboard, and paper products in January 1948 totaled 332,974 tons, the Forest Products Division of the Department of Commerce reported this week. These imports were 71,050 tons below the December 1947 level, the decrease being principally due to the decline in imports of newsprint, but were 26,032 above those in January 1947.

Of total imports in this group during November, paper (principally newsprint) represented 327,305 tons, and paper products 443 tons, according to the Forest Products Division.

Newsprint imports during January, amounting to 320,564 tons, were 69,343 tons below those in December, but 26,521 tons above the January 1947 imports.

December imports of pulpwood were 7,409 cords more than the December total while wood pulp imports registered a drop of 22,923 tons in similar comparison.

January 1948 exports of paper, paperboard, and paper products totaled 31,369 tons, a decrease of 6,475 tons from those in December 1947 and a decrease of 4,315 tons from the corresponding month of last year.

Of total exports in this group during January, paper amounted to 14,309 tons, paperboard 8,990 tons, and paper products 8,070 tons.

Newsprint exports in January, totaling 1,772 tons, were 964 tons below those in December 1947.

January exports of wood pulp amounted to 11,109 tons, a gain of 2,831 tons from the total for the previous month.

Rhinelander Appoints Davis

CHICAGO — The Rhinelander Paper Company has appointed Willmer J. Davis, formerly with Little & Company of Chicago, food processors, to a position on the Rhinelander sales staff with offices in the Chicago headquarters at 228 North Salle Street.

Professional Group Boosts Progress Week

CHICAGO—The Chicago Professional Paper Group is doing its level best to insure a big and representative attendance at the Chicago Technical Conference which opens at the Hotel Stevens, Chicago, next Monday, March 22. "Technical Progress Week" will be held at the same time to honor Chicago's men of science, engineering and technology.

The Group is sponsoring two panels which will be held in conjunction with the Conference, the first on the morning of March 23 when "Packages for John Q. Public" will be presented by a panel of which H. R. Ally, Chicago Show Printing Company, is to be chairman with Irving J. Stoller of the Fibleco Illinois Paper Corporation as honorary chairman. Panel members include Mr. Stoller who will emphasize technical needs; C. L. Barr, vice-president, F. B. Redington Company, who will discuss "Billions of Packages"; Albert Knew, manager of Design Laboratories, Container Corporation of America, reviewing "Control of Good Package Design"; and Jack L. Ware, packaging engineer, Sears-Roebuck & Company, talking on "Protective Packaging from Pillows to Kitchen Sinks."

On the afternoon of March 23 the Chicago Professional Paper Group will present a panel "Color in Printing—Its Psychology Application and Reproduction." Gaylor Donnelly, executive vice-president, R. R. Donnelly & Sons Company, will be honorary chairman. Panel chairman is Marvin C. Rogers, director of research, R. R. Donnelly & Sons Company. Speakers and their subject include Douglas Smith, executive art director, the Buchen Company, "Psychology of Color"; Taylor Poore, director of design, Temp, Inc., "Application of Color"; and Logan Anderson, sales representative, R. R. Donnelly & Sons, "Reproduction of Color."

In addition, the Group will have its regular monthly meeting in the dining room of the Chicago Bar Association on the evening of March 23, confident that many guests to the Technical Conference will be on hand to hear the discussion on "Developments in Coatings, Impregnants and Saturants for Paper." Speakers on this program will be J. H. Carter, sales manager of the Nashua Gummed and Coated Paper Company of Nashua, N. Y., who will discuss "Heat Seal" or Thermoplastic Papers, and E. G. Partridge, director of research for American Anode, Inc., of Akron, who will review the latest developments for "Latex Compounds for the Paper Industry."

Woosnam Resigns at B. F. Perkins

HOLYOKE, Mass.—William Woosnam has resigned as general sales manager of B. F. Perkins & Son, Inc.

IMPORTS

NEW YORK IMPORTS

SUMMARY

WEEK ENDING MARCH 13, 1948

Newsprint	9249 rolls
Printing Paper	641 rolls, 2 cases
Sulphite Paper	281 bls., 94 rolls
Wrapping Paper	1009 rolls
Wallpaper	1 cs., 8 bls.
Paperhangings	21 bls., 4 cs.
Tissue Paper	15 cs.
Coated Paper	47 cs.
Serviettes	1 cs.
Rice Paper	15 cs.
Strawboard	21 bls.
Miscellaneous Paper	1cs., 1 roll

NEWSPRINT

Hudson Despatch Co., Ogna, Rouen 269 rolls.
Times Publishing Co., Norefjord, Oslo, 366 rolls.
Pagel Horton & Co., Inc., Norefjord Oslo, 570 rolls.
(———), Uddeholm, Abo, 92 rolls.
N. Y. Journal American, Markland, Liverpool, N.S., 1,202 rolls.
N. Y. Herald Tribune, Markland, Liverpool, N. S., 1,774 rolls.
N. Y. World Telegram, Markland, Liverpool, N.S., 720 rolls.
Brooklyn Eagle, Markland, Liverpool, N.S., 698 rolls.
Herald Statesman, Inc., Markland, Liverpool, N.S., 1,742 rolls.
Richmond Newspapers, Inc., Markland Liverpool, N.S., 1,766 rolls.
Price & Pierce Ltd., Markland, Liverpool, N.S., 208 rolls.
Elof Hansson Inc., Creighton Victory, Antwerp, 29 rolls.
N. Y. Sun, Selma Thorden, Pt au Basques, 1,110 rolls.
Clinton Paper Corp., Selma Thorden, Pt au Basques, 403 rolls.

PRINTING PAPER

D. C. Andrews & Co., Norefjord, Oslo, 282 rolls.
(———), Uddeholm, Abo, 359 rolls.
International Expediters, American Veteran, London, 2 cases.

SULPHITE PAPER

Joe Salwen Paper Products Corp., Norefjord, Oslo, 177 bls.
D. C. Andrews & Co., Norefjord, Oslo, 94 rolls.
Joe Salwen Paper Products Corp., Ranenfjord, Kristiansand, 104 bls.

WRAPPING PAPER

(———), Uddeholm, Abo, 1,009 rolls.

WALLPAPER

American Express Co., Goya, Havre, 1 cs.
W. H. S. Lloyd & Co., American Clipper, Manchester, 8 bls.

PAPERHANGING

W. H. S. Lloyd & Co., American Veteran, London, 21 bls., 4 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., American Clipper, Liverpool, 15 cs.

COATED PAPER

F. P. Gaskell Co., American Clipper, Glasgow, 47 cs. (for cigarette tips).

SERVIETTES

Gimbel Bros., American Clipper, Liverpool, 1 cs.

RICE PAPER

Ziskind & Co., Spitfire, Shanghai, 15 cs.

STRAWBOARD

Premier Decorations, Inc., Gainesville Victory, Antwerp, 21 bls.

MISCELLANEOUS PAPER

Rohner Gehrig & Co., Oregon, Havre, 1 cs.
National Pulp & Paper Co., Norefjord, Oslo, 1 roll.

RAGS, BAGGINGS, ETC.

New England Waste Co., Surna, Santos, 86 bls. cotton waste.
American Cotton Products Co., Loide Canada, Santos, 588 bls. picker waste.
1st National Bank of Boston, Bolivia, Copenhagen, 179 bls. old bagging.
New England Waste Co., Bostonian, Buenos Aires, 153 bls. cotton waste.
(———), Bostonian, Buenos Aires, 62 bls. cotton waste.
Railway Supply & Manufacturing Co., Bostonian, Santos, 92 bls. cotton Waste.
New England Waste Co., Marine Snapper, (———), 200 bls. cotton waste, 200 bls. old jute rags.
H. Alderstein, Marine Snapper, Genoa, 9 bls. paperstock, 40 bls. cotton rags.
H. Alderstein, Marine Snapper, Leghorn, 393 bls. cotton rags.
(———), American Clipper, Glasgow, 81 bls. paperstock.
Midwest Waste Material Co., B. Ingelsson, Antwerp, 149 bls. old bagging.

OLD ROPE

Brown Bros., Harriman & Co., Bolivia, Copenhagen, 207 bls. old rope.
(———), Excelsior, Calcutta, 420 bls. old hemp rope cuttings.
R. L. Pritchard, Excelsior, Calcutta, 65 bls. old hemp rope cuttings.

GLUESTOCK ETC.

(———), Agwiking, Havana, 78 bls. gluestock.
H. Remis, Santa Sofia, Barranquilla, 72 bls. dry hidecuttings.

CASEIN

Casein Co. of America, Div. of The Borden Co., Livia, Buenos Aires, 3,043 bags (ground lactic).
F. H. Paul & Stein Bros., Livia, Buenos Aires, 300 bags.
Hercules Powder Co., Livia, Buenos Aires, 2,000 bags.
F. H. Paul & Stein Bros., Mormacport, Buenos Aires, 300 bags.
Balfour Guthrie & Co., Mormacport, Buenos Aires, 500 bags.
American Cyanamid & Chemical Co., Mormacport, Buenos Aires, 2,000 bags.
Mercantile Metal & Ore Corp., Mormacport, Buenos Aires, 1,000 bags.
National Casein Sales Co., Mormacport, Buenos Aires, 3251 bags.
American British Chemical Supplies, Bostonian, Buenos Aires, 800 bags (lactic).
Irving Trust Co., Bostonian, Buenos Aires, 120 bags (lactic).
Hercules Powder Co., Bowplate, Buenos Aires, 1,000 bags.
International Packers Commercial Co., Bowplate, Buenos Aires, 500 bags.

WOODPULP

Price & Pierce, Ltd., Markland, Liverpool, N.S., 2,320 bls. unbleached sulphite pulp.

WOODPULP BOARDS

National City Bank, Uddeholm, Abo, 236 bls. (solid white).

BOSTON IMPORTS

WEEK ENDING MARCH 13, 1948

Casein Co. of America, Div. of The Borden Co., Livia, Buenos Aires, 625 bags casein.
Ayres W. C. Jones Co., Creighton Victory, Antwerp, 245 bls. cotton waste.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 13, 1948

(———), Uddeholm, Abo, 633 rolls wrapping paper, 1,137 rolls newsprint.
National City Bank, Uddeholm, Abo, 4745 bls. prime unbleached kraft sulphate pulp, 2,700 bls. prime unbleached sulphite pulp.
Bank of The Manhattan Co., American Clipper, Manchester, 71 bls. cotton rags.
Mynol Chemical Co., American Clipper, Manchester, 3 cases carbonpaper.
J. A. Steer, American Veteran, London, 1 cs. filter paper.

BALTIMORE IMPORTS

WEEK ENDING MARCH 13, 1948

Chemical National Bank, Goya, Havre, 1,800 rolls newsprint.

NORFOLK IMPORTS

WEEK ENDING MARCH 13, 1948

Dixie Jute Bagging Co., Leerdam, Rotterdam, 680 bls. jute waste bagging.
(———), Selma Thorden, Pt au Basques, 4,743 rolls newsprint.

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, March 17, 1948.

Indicative of the bent of American business thinking since the first break in the commodity market is this week's reported resistance to prices of Scandinavian wood pulp which as announced for Finland's product in December and for Sweden's recently shown new increases over 1947 prices Such advances came as no surprise They had been heralded by reports and periodicals for months. Quotations from Scandinavian publications were carried by this column to indicate the trend. Latest information from Sweden is that selling activities are rather limited while awaiting the results of negotiations between the industries and the authorities regarding the conditions of pulp exports after March 1 and that prices continue very firm on both chemical and mechanical pulp.

Power conditions which have so disastrously hampered full capacity production and therefore advanced cost are reported by Svensk Pappersmasse Tidning to be bettering. We are informed that "one pleasing factor is the brightening outlook for power supplies, that the abundant snowfalls and thaws in central and south Sweden in late January and the first week of February are beginning to fill our water magazines. Unusually heavy snows also have fallen in Norrland and we may therefore expect large additions to our water reserves as soon as the snow begins to melt. The Fuel Commission has already announced that they hope to relieve the restrictions as far as the cellulose industry and the mechanical pulp mills working for export are concerned, so that they may about the middle of April be able to count on 98 and 70 percent respectively of their normal requirements. The mechanical pulp mills will not be able to complete their export orders, however, unless even more power is allotted to them. The allotment of electric power has since November 1 averaged about 83 percent of the previous year's consumption. That allotment has already been raised by 5 percent. This increase is not uniform to all industries, however, but will in the first place go to the export industries, and more particularly to those that can provide Sweden with hard currencies."

Negotiations between the pulp industry and the paper mills in Sweden have not been concluded. Nor has the proposed agreement yet been signed between the authorities and the pulp industry regarding the form of Swedish exports when the earlier agreement expires. This has been provisionally prolonged for a period up to March 1 in the hope that the negotiations for the new agreement will then be concluded.

In an atmosphere of "cautious driving; proceed slowly," domestic and Canadian wood pulp prices for the second quarter are announced at first quarter levels. What reaction to Scandinavian increases has been reported is to the effect that at such a time they seem ill-fated.

Waste Paper

Indications of a healthy normalcy are seen as emerging through the quiet of today's trading on low bulky grades, a lull which has resulted from released collections also the desire of mills to clean inventories before acquiring new stocks. Strong demand for higher pulp-substitute grades reflects steady mill requirements, and should continue unabated while the world pulp shortage persists. Renewed inquiry for export, particularly on folded news, indicates fresh interest in this direction, a trade which is expected to gather impetus with the establishment of a simplified set of standards and practices for waste paper trading — a study which got underway in Chicago last week. The index of paperboard production rose to 192.5 from 181.0 in the week of February 28 at 104.0 percent of capacity, compared with 101.0 for the previous week, with a substantial rise in new order volume reported.

Lack of buying produced a quiet market for the low bulky grades this week, and prices are reported as having taken a $3 drop on folded news and old corrugated. Mixed is holding at $11 to $13 to mills. White and colored ledgers are softened, also No. 1 heavy book. Other prices are quotably maintained.

Cottons

Market reports of consumer resistance and caution in apparel buying come into the concrete in the new cuttings market. Hesitancy in buying apparel material when stocks are moving so slowly is rampant, and manufacturers are reported using up present supplies and refusing additional ones. Thus the situation is regarded as a slight recession in the garment industry with little cutting being done. Papermaker demand continues restricted, but what supplies of cuttings are available are being taken up. Prices are unchanged.

Roofing rags continue in steady demand with supplies readily absorbed. Trading is restricted only by short supply. Prices are firm on all grades of cotton rags, although some buyer resistance is indicated to present levels.

Index

Index of general business activity for the week ended March 6 declined to 151.7 from 153.5 in the preceding week, compared with 144.2 for the corresponding week of 1947. Index of paperboard production rose to 192.5 from 181.0 in the preceding week, compared with 178.3 in the corresponding week of 1947.

Paper production for the week ended March 6 was estimated at 101.1 percent compared with 102.1 for the previous week, with 104.5 for the corresponding week of 1947, with 103.4 for the corresponding week of 1946, and with 87.7 for the corresponding week of 1945.

Paperboard production for the week ended March 6 was 104.0 percent of capacity, compared with 101.0 for the previous week, with 102.0 for the corresponding week of 1947, with 99.0 for 1946, and with 94.0 for the corresponding week of 1945.

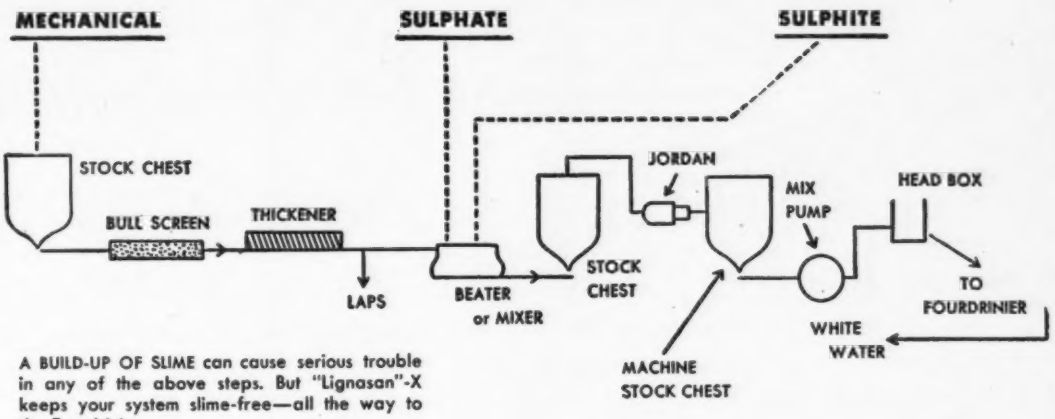
Miscellany

As a result of trade agreement between Brazil and the United States, important duty reductions have been made on wallpaper, with lesser reductions ranging from 10 to 25 percent on white, colored and printed crepe, glassine, oiled, tracing, greaseproof, and tisue paper in sheets, rolls or spools.

UNITED STATES IMPORTS OF WOODPULP
(Preliminary Figures)
January 1948

Commodity	Country of Origin	(Short tons)
Mechanically ground woodpulp		
Unbleached	Canada	25,053
Screenings	Canada	214
Bleached	No transactions	
Chemical woodpulp		
Sulphite, unbleached	Canada	34,823
	Sweden	24,250
	Finland	3,472
		62,545
Screenings	Canada	844
Sulphite, bleached		
Rayon and special chemical grades	Canada	15,876
	Sweden	25
		15,901
Other	Canada	16,507
	Sweden	4,133
		20,640
Sulphate		
Unbleached (Kraft pulp)	Canada	11,788
	Mexico	238
	Sweden	17,782
	Finland	8,817
		38,625
Bleached	Canada	16,474
	Sweden	4,396
		20,870
Soda pulp, unbleached and bleached	Canada	1,884

Where is slime control your biggest problem?



A BUILD-UP OF SLIME can cause serious trouble in any of the above steps. But "Lignasan"-X keeps your system slime-free—all the way to the Fourdrinier.

In all types of paper and paper board mills...

use LIGNASAN®-X

BACTERICIDE AND FUNGICIDE

for a Clean System

"LIGNASAN"-X helps to keep your plant in continuous operation. It minimizes shutdowns for washing the system by eliminating slime-clogged pipes, screens, chests and headboxes . . . keeps the system clean, all the way to the paper machine.

"Lignasan"-X helps prevent smears, holes, weak spots and breaks in the sheet caused by slime. And it averts such production bottlenecks as sheets sticking to the press rolls.

"Lignasan"-X is also an effective protectant for wet laps in storage, coating compositions and papermakers' alum. It is ideal for preserving slush pulps.

Low Cost . . . Quick Acting

"Lignasan"-X is inexpensive. And in most cases, it takes only a few ounces of "Lignasan"-X per ton of fiber to do the job.

This improved bactericide and fungicide is now water soluble for quick action.

In ground wood mills, it can be added to the slush pulp as it leaves the grinders. For cooked pulps, it is added most effectively after the pulp has been washed and thickened.

Du Pont will be glad to send you full details on the latest and most efficient methods of using "Lignasan"-X. Address E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Wilmington 98, Delaware.

DU PONT LIGNASAN®-X

Bactericide and Fungicide

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

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REG. U.S. PAT. OFF.

PRICES

With the elimination of price controls on paper, pulp, rags and other materials, the quotations given below once more become indicative of trends in an open market. At the moment they can be of little more, for, while some volume business still is being done under contract at the figures given below, fluctuations representing special conditions are to varied and too frequent to permit prices to be given as representing a wholly stabilized market.

Paper

(Delivered New York)

Standard News, per ton—
Rolls, contract .... $93.00/$96.00
Sheets 102.50/109.00

Kraft—per cwt.—Carload Quantities
Zone A Deld. 40 lb. base wgt.
Superstandard Wrapping ..... $9.00/ —
No. 1 Wrapping 7.25/ 8.00
Standard Wrapping .. 6.50/ —
Standard Bag ..... 6.50/ —

Tissues—Per Ream 24x36 (480) 11 lb. Zone 1.
Wh. No. 1 Frd. .... $1.84/$2.00
Wh. No. 1 M. G. 1.94/ 2.00
Wh. No. 1½ ..... 1.60/ —
Wh. No. 2 ..... 1.75/ —
Kraft Anti-Tar ..... 1.65/ —
Kraft Unbl. ..... 1.85/ —
Manila No. 2 ..... 1.62/ —
Shred. Wh. No. 1 cwt. 1.10/ 1.50

Toilet—Per Case of 100 rolls—1 M Sheets.
Unbleached ..... $8.50/$10.00
Bleached 8.50/ 10.00

Paper Towels—Per Case of 3750—Zone 1.
Wh. Jr. M'tif'd 9¼x9½ .. $5.15
Br. Sr. M'tif'd 10x12 ..... 3.60
Br. Jr. M'tif'd 9½x9¾ .. 3.10
Br. Jr. Sgl. fold 10x10¾ .. 3.15

Manila—per cwt.—C-l. f.a.
No. 1 Jute Tag ... $14.50/ —
Reg. Jute Manila . 13.25/$15.50
No. 1 Manila .... 9.75/ —

Boards, per ton—
Plain News ..... $92.50/ —
Filled News ..... 94.00/ —
Plain Chip ..... 90.00/ —
Sgl. Mla. J-d. Chip* 100.00/102.50
White Pat. coated* 120.00/ —
Kraft Liners 42 lb. 100.00/ —
Kraft Corr. .009 .. 105.00/ —
Binders Boards ... 126.00/ —

* Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following prices are representative of distributors' resale prices, all deliveries in Zone 1; Rag Content Bonds and Ledgers—

White, Assorted Items
Bonds, per cwt.

	Carton	4 C't'n	Ton
100% Rag Ext. No. 1	$55.00	$50.80	$48.70
100% Rag	48.25	44.55	42.70
75% Rag	37.50	34.55	33.10
50% Rag	32.25	29.40	28.25
25% Rag	28.75	26.15	25.10

Ledgers, per cwt.

100% Rag Ext. No. 1	$55.00	$50.80	$48.70
100% Rag	48.25	44.55	42.70
75% Rag	37.50	34.55	33.10
50% Rag	32.25	29.40	28.25
25% Rag	28.75	26.15	25.10

Sulphite Bonds and Ledgers—
White, Assorted Items
Bonds, per cwt.

No. 1	$21.25	$19.25	$18.50
No. 2	20.25	18.30	17.55
No. 4	19.25	17.55	16.85

Ledgers, per cwt.

No. 1	$21.75	$19.65	$18.85
No. 2	20.75	18.75	18.05
No. 4	20.00	18.10	17.35

Free Sheet Book Papers—
White, Cased Paper

(Per cwt.)	Case	Ton
No. 1 Glossy Coated	20.40	$19.50
No. 2 Glossy Coated	19.15	18.30
No. 3 Glossy Coated	18.40	17.60
(Per cwt.)	Case	Ton
No. 1 Antique (Watermarked)	$15.90	$15.15
No. 2 Offset	15.15 to 17.90	14.60 to 17.10
A Grade E. F.	14.90	14.25
A Grade S. & S. C.	15.40	14.65
B Grade E. F.	13.90	13.30
B Grade S. C.	14.40	13.70

Wood Pulp

Domestic mill contract prices delievered with varying freight allowances.

	Per Short ADT
Groundwood	$80.00/$81.00
Unbleached Sulphite	124.00/ —
Bleached Sulphite	125.00/135.00
Bleached Soda	130.00/ —
Bleached Sulphate	175.00/185.00
Unbleached Sulphate Northern	125.00/155.00
Unbleached Sulphate Southern	130.00/145.00

Canadian Quotations

Prices delivered with varying freight allowances unless otherwise specified:

	Per Short ADT
Reg. No. Kraft	125.00/ —
Unbleached Sulphite	125.00/126.00
Bleached Sulphite	125.00/135.00
Glassine Unbleached Sulphite (no freight allowance)	120.00/ —
Bleached Soda	130.00/ —
Groundwood	80.00/ 85.00
Siderums Pulping News	80.00/ —
Hardwood and Specialty Grades	Nominal

Swedish Quotations
On dock, Atlantic Ports

	Per Short ADT
Bleached Kraft	175.00/185.00
Bleached Sulphite	175.00/185.00
Unbleached Sulphite	145.00/175.00
Unbleached Kraft	140.00/165.00

Finnish Quotations
On dock, Atlantic Ports

	Per Short ADT
Bleached Sulphite	$185.00/ —
Unbleached Sulphite	155.00/157.00
Unbleached Sulphate	147.50/ —

New Domestic Cotton Cuttings

(F.O.B. Shipping Point Plus Dealer's Commision)

White Shirt	$12.00/$12.50
Unbleached Muslin	12.00/ 12.50
Light Silesias	9.00/ 9.25
White Back Blue Overalls	9.00/ 9.50
Blue Overalls	8.00/ 8.25
Fancy Shirt	6.00/ 6.25
Light Percales	8.50/ 8.75
Light Prints	7.50/ 7.75
No. 1 Washables	5.00/ 5.25
Bleachable Khaki	7.50/ 8.00
Unbleachable Khaki	6.50/ 7.00
Cottonades	5.50/ 5.75

Old Domestic Cotton Rags

(F.O.B. Shipping Point Plus Dealer's Commission)

	Per 100 lbs.
No. 1 Whites Repacked	$5.50/ $6.00
No. 1 Whites Miscellaneous	4.50/ 5.00
No. 2 Whites Repacked	3.50/ 3.75
No. 2 Whites Miscellaneous	3.00/ 3.50
Blue Overalls	3.75/ 4.00
Thirds and Blues Repacked	3.25/ 3.50
No. 1 Roofing Rags	2.10/ 2.15
No. 2 Roofing Rags	1.90/ 2.00
No. 3 Jute Bagging	1.75/ 1.85
No. 4 Brussels and hard back carpets	1.75/ 1.85
No. 5A Roofing Rags	1.75/ 1.85

New Foreign Cotton Cuttings

(Prices to Mill, F.O.B. Dock, N.Y.)

	Per 100 lbs.
New Dark Cuttings	$5.50/ $5.75
New Mixed Cuttings	6.25/ 6.50
Light Silesias	9.25/ 9.50
Light Flannelettes	9.25/ 9.50
New White Cuttings	12.00/ 13.00
New Unbleached Cuttings	12.25/ 13.00
Fancy Shirt Cuttings	6.50/ 7.00
Light Prints	7.75/ 8.00
Bleachable Khaki, No. 1	7.00/ 7.50
Unbl. Khaki, No. 1	6.25/ 6.75

Old Foreign Rags

(Prices to Mill, f.o.b. dock, N.Y.)

	Per 100 lbs.
No. 1 White Linens	$14.00/$16.00
No. 2 White Linens	12.00/ 13.00
No. 3 White Linens	8.00/ 9.00
No. 4 White Linens	8.00/ 9.00
No. 1 White Cottons	8.00/ 10.00
No. 2 White Cottons	7.00/ 8.00
No. 3 White Cottons	6.00/ 6.50
No. 4 White Cottons	4.00/ 4.50
Extra Light Prints	6.50/ 7.00
Old Light Prints	4.50/ 5.00
Med. Light Prints	4.00/ 4.50
Dutch Blue Cottons	5.25/ 5.50
Checks and Blues	4.00/ 4.25
Linsey Garments	2.60/ 2.75
Dark Cottons, European	2.50/ 2.60
Dark Cottons, Egyptian	3.00/ 3.25
Old Shopperies	2.20/ 2.30
New Shopperies	2.40/ 2.50

Bagging

(Prices to Mill, f.o.b. N.Y.)

	Per 100 lbs.
Foreign Gunny, No. 1	$6.00/ $6.50
Domestic Gunny, No. 1	6.25/ 6.50
Light Wool Tares	6.25/ 6.50
Heavy Wool Tares	6.00/ 6.25
No. 1 Scrap Bagging	5.50/ 5.75
Roofing Bagging	2.00/ 2.25
Foreign Manila Rope	6.00/ 6.75
Domestic Manila Rope	6.50/ 6.75
Jute Strings	5.00/ 5.25
No. 1 Sisal Strings	5.25/ 5.50
Mixed Strings	1.75/ 2.50

Waste Paper

Base Prices to Mills for Average Packings
(Dollars Per Ton)
F.o.b. New York, Baled

No. 1 Hard White Envelope Cuts, one cut	$155.00/$165.00
No. 1 Hard White Envelope Cuts	145.00/ 155.00
No. 1 Hard White Shavings, unruled	145.00/ 155.00
No. 1 Hard White Shavings, ruled	110.00/ 130.00
Soft White Shavings, one cut	145.00/ 155.00
No. 1 Soft White Shavings	135.00/ 145.00
Soft White Shavings, Misc.	125.00/ 135.00
No. 1 Fly Leaf Shavings	45.00/ —
No. 1 Groundwood Fly Leaf Shavings	35.00/ —
N. 1 Heavy Books & Magazines	27.00/ —
Mixed Books	15.00/ 20.00
No. 1 White Ledger	85.00/ 90.00
Manila Tab. Cards	9.50/ 11.00
New Manila Envelope Cuttings, one cut	100.00/ 110.00
New Manila Envelope Cuttings	65.00/ 75.00
Extra Manilas	25.00/ 30.00
Mixed Kraft, Env. & Rag Cuttings	75.00/ 85.00
Kraft Envelope Cuttings	110.00/ —
Triple Sorted, No. 1 Brown Soft Kraft	65.00/ 75.00
New Kraft Corrugated Cuttings	80.00/ 85.00
No. 1 Assorted Old Kraft	55.00/ 60.00
New Jute Corrugated Cuttings	27.00/ —
Old 100% Kraft Corrugated Containers	45.00/ 50.00
No. 1 News	17.00/ 18.00
No. 1 Mixed Paper	11.00/ 13.00
Box Board Cuttings	— / —
White Blank News	75.00/ 85.00
Overisue News	23.00/ 24.00
Old Corrugated	23.00/ 25.00
Mill Wrappers	22.00/ 24.00

Twines

All Prices Nominal, F.o.b. Mill

(Soft Fiber)

Coarse Polished— India	.33¾/ .35
Fine India	.38¾/ .42½
Fine Polished Unpolished— Paper Makers	.28¼/ .30¾
Tube Rope	.29 / .31½
Wrapping	.32 / .35¾
Cotton	.63¼/ .66¾

(Hard Fiber)

Mex. Sisal	.21 / .27
Manila (Reprocessed)	.30 / .32

(American Hemp)

Polished Hemp	.36¾/ .60
Unpolished	.32¼/ .54

PHILADELPHIA

Domestic Rags (New)

(F.O.B. Eastern Shipping Point)

Shirt Cuttings— New White No. 1	.11 / .12
New White No. 2	nominal
Light Silesias	.07½/ .08
Black Silesias, soft	.06½/ .07
New Unbleached	.10½/ .11¼
Washable Prints	.06½/ .07
Washable No. 1	.05 / .05½
Blue Overall	.07¼/ .08
Cotons—According to grades— Washable Shredding	.03½/ .04
Fancy Percales	.06¾/ .07¼
New Black Soft	nominal
Khaki Cuttings— Unbleachable Cotton Cuttings	.06 / .06½
Bleachable Cotton Cuttings	.07 / .07½
Men's Corduroy	.05½/ .06
Ladies' Corduroy	.05 / .05½
Cottonades	.05½/ .06

Domestic Rags (Old)

(F.O.B. Eastern Shipping Point)

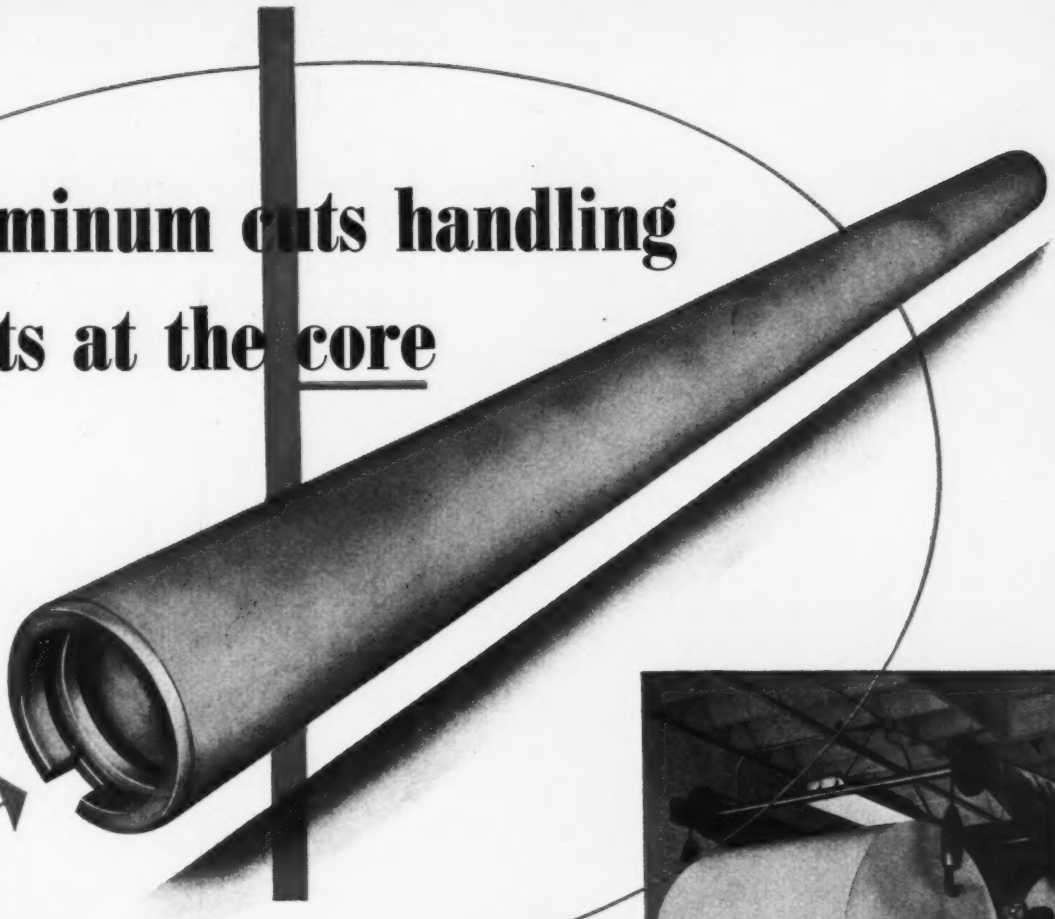
White No. 1 —Repacked	4.50 / 5.00
Mixed White	4.00 / 4.25
White No. 2—Repacked	3.50 / 3.75
Thirds and Blues— Miscellaneous	2.25 / 2.50
Repacked	2.75 / 3.00
Roofing Stock— Foreign No. 1	nominal
Domestic No. 1	1.85 / 1.90
Domestic No. 2	1.75 / 1.80
Roofing Bagging	1.65 / 1.70
Old Manila Rope	6.25 / 6.50

Bagging

(F.O.B. Eastern Shipping Point)

Gunny No. 1— Foreign	nominal
Domestic	4.75 / 5.25
No. 1 Clean Bright— Sisal Strings	.04½/ .05
No. 2 Clean Bright— Sisal Strings	.03½/ .04
Sisal Jute	.02¼/ .03
Scrap— No. 1	5.00 / 5.50
No. 2	2.50 / 3.00

aluminum cuts handling costs at the core



REYNOLDS Rigid Aluminum Paper Core Stock is now available!

THIS new paper shipping core, made of tough heat-treated aluminum, solves an old problem and brings new economies to paper makers and printers.

Lighter, stronger aluminum cores offer important advantages. Because they can't rust, they will not stain paper. They feed well because they run true. They won't collapse and they can withstand shipping shocks and rough treatment.

If you plan to switch to cores of larger diameter, consider the additional advantages of aluminum: waste is eliminated because you can use all the paper down to the aluminum core. Shipping costs are reduced, and one man can easily handle the empty core.

Paper producers and printers can now demand this quality aluminum core. For information and engineering assistance, write to Industrial Machinery Division, Reynolds Metals Company, 310 Hanna Building, Cleveland 15, Ohio.

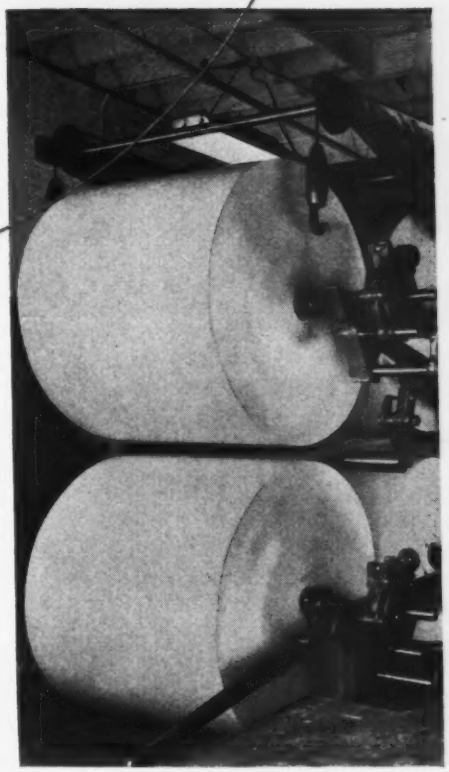


Photo Courtesy The Goss Printing Press Company

REYNOLDS METALS COMPANY, Aluminum Division, Louisville 1, Ky.

REYNOLDS *Lifetime* ALUMINUM

REYNOLDS MADE ALUMINUM COMPETITIVE — TAKE ADVANTAGE OF IT

Wol Tares, heavy	4.75	/ 5.00
New Burlap Cuttings	6.00	/ 6.50

Old Papers

(F. o. b. Phila.)
Mill Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	$100.00/$115.00	
No. 1 Hard White Shavings, unruled	100.00/	—
Soft White Shavings, One cut	90.00/	95.00
White Blank News	75.00/	—
Soft White Shavings	80.00/	—
No. 1 White Ledger	85.00/	90.00
Ledger, Colored	70.00/	72.00
No. 1 Heavy Books & Magazines	24.00/	26.00
Overissue Magazines	nominal	
New Manila Envelope Cuttings	80.00/	—
No. 1 Assorted Old Kraft	60.00/	65.00
No. 1 Mixed Paper	11.00/	12.00
Box Board Cuttings	10.00/	11.00
Kraft Corrugated Cuttings	90.00/	100.00
Old Corrugated	24.00/	26.00
Overissue News	20.00/	22.00
No. 1 News	13.00/	15.00

BOSTON

Old Papers

(F. o. b. Boston)
Mill Prices, Baled

No. 1 Hard White Shavings, unruled	6.25	/ 6.75
No. 1 Hard White Shavings, ruled	6.00	/ 6.50
Soft White Shavings, Misc.	6.00	/ 6.25
No. 1 Fly Leaf Shavings	—	/ —
No. 2 Fly Leaf Shavings	4.25	/ —
No. 1 Groundwood Fly Leaf Shavings	1.75	/ 2.00
No. 2 Groundwood Fly Leaf Shavings	1.50	/ 1.75
Mixed Colored Shavings	2.00	/ 2.25
New Manila Envelope Cuts, one cut	4.50	/ 4.75
Hard White Envelope Cuts, one cut	7.00	/ —
Triple Sorted No. 1 Brown Soft Kraft	3.75	/ 4.00
Mixed Kraft Env. & Bag Cuttings	4.00	/ 4.25
Kraft Envelope Cuttings	3.75	/ 4.00
No. 1 Heavy Books & Magazines	1.75	/ —
New Manila Envelope Cuttings, one cut	—	/ —
New Manila Envelope Cutings	4.00	/ 4.25
White Tabulating Cards	5.00	/ —
Groundwood Tabulating Cards	1.50	/ 1.75
White Blank News	2.25	/ 2.50
No. 1 Assorted Old Kraft	3.50	/ 4.00
No. 1 Mixed Paper	.65	/ .75
Overissue News	1.00	/ 1.25
Box Board Cuttings	.60	/ .70
New Corrugated Cuttings, Kraft	2.75	/ 3.00
Old Kraft Corrugated Containers	2.50	/ —
Old Corrugated Containers	1.25	/ 1.30
Jute Corrugated Cuttings	1.07½/	—
Paper Strings	2.00	/ 2.25

Bagging

(F. o. b. Boston)

Gunny Bagging—		
Foreign	—	/ 4.75
Domestic	—	/ 4.75
Sisal Rope No. 1	6.00	/ —
Sisal Rope, No. 2	5.50	/ —
Mixed Rope	5.25	/ —
Mixed Strings	2.00	/ 2.50
Transmision Rope—		
Foreign	nominal	
Domestic	3.00	/ 3.50
Manila Rope—		
Foreign	nominal	
Domestic	6.25	/ —
Soft Jute Rope	5.00	/ 5.25
Jute Carpet Threads	6.00	/ —
Bleachery Burlap	8.50	/ 9.00
Scrap Burlap—		
Foreign	—	/ 4.75
Domestic	—	/ 4.87½
South America	5.25	/ —
Wol Tares—		
Foreign	4.75	/ —
Domestic	4.75	/ —
Asst. Wool Pouches	5.00	/ 5.25
New Zealand Wool Pouches	5.25	/ 5.50
New Burlap Cuttings	6.00	/ 6.50
Heavy Baling Bagging	5.25	/ 5.75
Paper Mill Bagging	3.50	/ 3.75
No. 1 Roofing Bagging	1.75	/ —

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—		
New Light Prints	.07½/	—
Fancy Percales	.08	/ —
New White No. 1	.11	/ .11¾
New Light Flannelettes	.08	/ .08½
Canton Flannels, Bleached	.10	/ .11
Underwear Cutters, Bleached	.11½/	—
Underwear Cutters, Unbleached	.11	/ .12
Silesias No. 1	.08	/ .08½
New Black Silesias	.04½/	—
Red Cotton Cuttings	.05	/ —
Blue Overalls	—	/ .08½
Soft Unbleached	.11	/ .12
Blue Cheviots	.08½/	.09
Fancy	.06	/ —
Washable	.06	/ —
Khaki Cuttings	.06½/	.07½
Corduroy	.03½/	—
Men's Corduroy	.04½/	—
Ladies' Corduroy	.04	—
Khaki Canvas	—	/ .06
B. V. D. Cuttings	.11½/	—

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—		
Repacked	3.80	/ —
Miscellaneous	3.20	/ —
White No. 2—		
Miscellaneous	2.65	/ —
Twos and Blues, Repacked	2.20	/ —
Old Blue Overalls	2.25	/ 2.50
Thirds and Blues,		
Repacked	2.20	/ —
Miscellaneous	1.80	/ —
Black Stockings	3.50	/ 4.00
Roofing Stock—		
No. 1	1.95	/ —
No. 2	1.85	/ —
No. 3	1.35	/ —
No. 4	1.35	/ —
No. 5, Quality A.	1.35	/ —
Quality B.	1.20	/ —
Quality C.	.95	/ —
Old Manila Rope	6.00	/ —

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Sielsias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)
Mill Prices, Baled

Shavings—		
No. 1 Hard White Envelope Cuts, one cut	$150.00/	—
No. 1 Hard White Shavings, runruled	140.00/	—
No. 1 Soft White Shavings	120.00/	—
No. 1 White Ledger	85.00/	—
No. 1 Heavy Books & Magazines	35.00/	—
White Blank News	80.00/	85.00
Mixed Kraft Env. & Bag Cuttings	90.00/	110.00
No. 1 Assorted Old Kraft	35.00/	—
Overissue News	24.00/	—
No. 1 News	21.00/	—
No. 1 Mixed Paper	13.00/	—
Old Corrugated	26.00/	—
Mill Wrappers	17.00/	—

MARKETS

BLANC FIXE—No change in market. Demand heavy. Prices firm. Pulp is currently quoted at $85 in bags, car lots at works, 6 cents per lb., l.c.l., deld.; by-product $75 per ton, car lots at works, 6 cents per lb., l.c.l., deld.

BLEACHING POWDER—Supply improves. Shortage of shipping container a delivery problem. Prices range from $3.75 to $4 per 100 pound drums, l.c.l, works.

CASEIN—Prices firm. Buying light. Current prices on processed acid precipitated casein at 33 to 35 cents per pound for domestic grades and 28½ to 30 cents for imported grades, f.o.b. shipping point.

CAUSTIC SODA—Capacity production unequal to increasing demand. Restrictions on export resale price and new output should reduce problem this year. Tank car shortage critical. Solid caustic is reported at $2.85 per cwt.; flaked and ground is quoted at $3.25 per cwt. in 400 pound drums, $3.75 per cwt, in 100 pound drums—car lots at works; liquid 50 percent in tank cars at $2.25 per cwt.; liquid 73 percent in tank cars at $2.35 per cwt. at works.

CHINA CLAY—Domestic grades and imported in good supply. Filled is $9 to $11.50 per ton, car lots; coating clay is $14 to $22. Imported clay quotation, short tons, $16 to $35, export warehouse.

CHLORINE—Spot easing of tank cars. Stocks in South. Pacific supply good. Demand sustained. Currently quoted at $2.25 per cwt, in single unit tank cars, at $2.55 to $3.75 per cwt, multi-unit tank cars, f.o.b. works.

ROSIN—Market firm following price break. Gum rosin in drums per 100 pounds net in yard. New York car lots. B, $9.05; D, $9.25; E, F, G, H, I, K, M, N, $9.35; WG $9.85; WW, $9.95; wood rosin, per 100 pounds, net, f.o.b., l.c.l., N. Y., B, $6.45; FF, $7.95; G, H, I, K, M, $9.18; N, $9.30; WG, $9.92; WW, $10.02; X, $10.12.

SALT CAKE—Demand continues ahead of supply with slight improvement in shipments. Prices unchanged. Domestic salt cake is quoted at $20 to $26.

SODA ASH — No easing of strong demand and tight supply. Shipments only against contracts. Current prices, car lots, per 100 pounds; in bulk, $1.10; in paper bags, $1.30; and in barrels, $1.70.

SODIUM BICARBONATE—Supply improved. Shortage of box cars delays shipment. Reported as $1.85 per cwt. paper bags, carload lots.

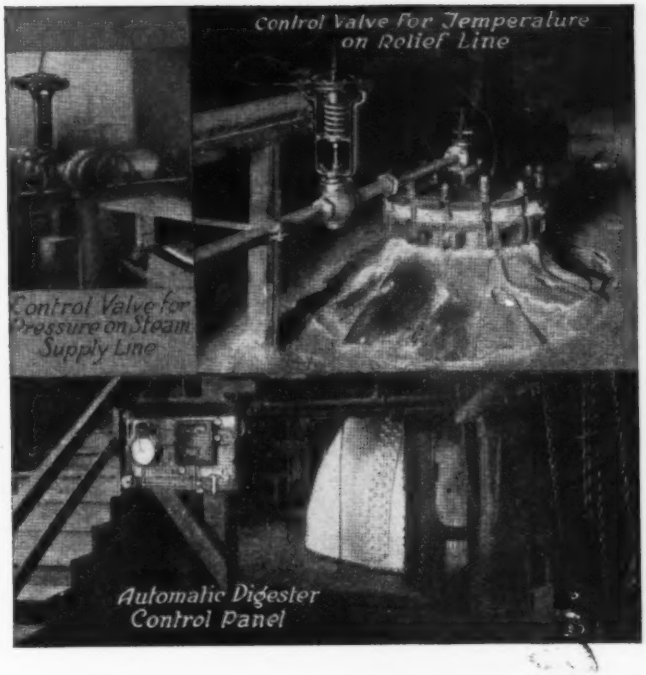
STARCH—Market strong with easier demand and good supply. Export market quiet because of dollar shortage. Pearl grade quoted at $6.96 per 100 pounds; powdered starch at $7.07 per 100 pounds; car lots, New York.

SULPHATE OF ALUMINA—Prices unchanged. Supply steady. The commercial grades are quoted at from $1.15 to $1.30 per 100 pounds, in bags, car lots, f.o.b. works. Iron free is $2 per 100 pounds in bags, car lots, at works.

SULPHUR—Supplies ample. Prices unchanged. Annual contracts are quoted at $16 to $18 per long ton, f.o.b. mines; the price f.o.b. at Gulf ports is $17.50 to $19.50 per long ton.

TALC—No change in domestic market. Demand far in excess of supply. Domestic grades are currently quoted at $21 per ton in mines; Canadian at $35 and up per ton. All prices in car lots.

TITANIUM DIOXIDE—Extremely tight supply with no early easing seen. Shipments on allocation. Anastase 17½c lb. carload lots, 18-18½c. l.c.l., rutile, 19½c lb. carload lots, 20-20½c l.c.l.; 50-lb. bags, f.o.b. plant, minimum freight allowance.


Control Valve for Temperature on Relief Line
Control Valve for Pressure on Steam Supply Line
Automatic Digester Control Panel

15 Years Old — and still going strong!

WE think this deserves some kind of a celebration. This sulphite pulp digester operation—much too complicated and critical to be left in the hands of even the most highly skilled operators—has been going on for fifteen years without a hitch. The reason? Taylor Automatic Temperature Control.

In this operation, like others, there are other variables besides temperature. But there's none more important from the standpoint of your investment in labor, time and materials. During the preliminary heating or penetrating period the acids should have time to thoroughly penetrate the chips to produce uniform quality pulp. Taylor Instruments control the temperature until the chips are thoroughly saturated, then increase the temperature at the usual rate of 3 to 4° C. per hour until the predetermined maximum is reached. Pressure is also controlled within very close limits of the pressure schedule, then reduced automatically to the blowing pressure specified by the operator.

For complete details on Taylor Controls for sulphite pulp digesting, call your Taylor Field Engineer. Or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada.

▼ ▼ ▼

Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.

Taylor Instruments
MEAN
ACCURACY FIRST
IN HOME AND INDUSTRY

DIGESTED

Let's take, as an example, the factors in a very practical and immediate issue—the proposed third round of national wage increases. You and I know the two trials we have made at this method of raising the standard of living of America's work force turned out pretty disastrously for all concerned, except perhaps for the farmer. Other thoughtful and honest observers predicted—and now recognize the accomplished fact of—the failure of this dog-chasing-its-tail or putting-out-a-fire-with-oil type of economic expedient.

But a lot of us almost despaired of the public ever catching on. To our discredit, we employers by our silence really seemed to be trying to keep the truth a secret.

However, even before there was any hint of the break in commodity markets and cost-of-living prices, 53% of the public already knew that it would be harmful to have another round. More surprising, this same Gallup Poll showed 39% of union members already against another round, and 16% undecided.—*From an address by* L. R. BOULWARE, Vice-President—Employe Relations, General Electric Company.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1948		Corresponding Weeks—1947	
January 31	103.6	February 1	104.0
February 7	99.2	February 8	104.2
February 14	100.5	February 15	104.5
February 21	99.4	February 22	105.9
February 28	102.1	March 1	108.5
March 6	*101.1*	March 8	104.5

COMPARATIVE MONTHLY SUMMARIES

1947						1948	
Jan.	102.1	May	106.2	Oct.	109.5		
Feb.	105.9	June	106.0	Nov.	109.3	Jan.	100.9
Mar.	106.1	July	93.5	Dec.	101.5	Feb.	*100.3*
Apr.	105.1	Aug.	104.2				
		Sept.	102.0	Year Avg.	104.3		

COMPARATIVE YEARLY SUMMARIES

	1941	1942	1943	1944	1945	1946	1947	1948
Year to Date	88.1	103.8	88.4	88.4	87.7	96.9	104.7	*100.7*
Year Average	97.4	90.4	87.8	88.1	89.4	101.1	104.3	

NOTE: *As of January 10 capacity base increased by 13.3%.*

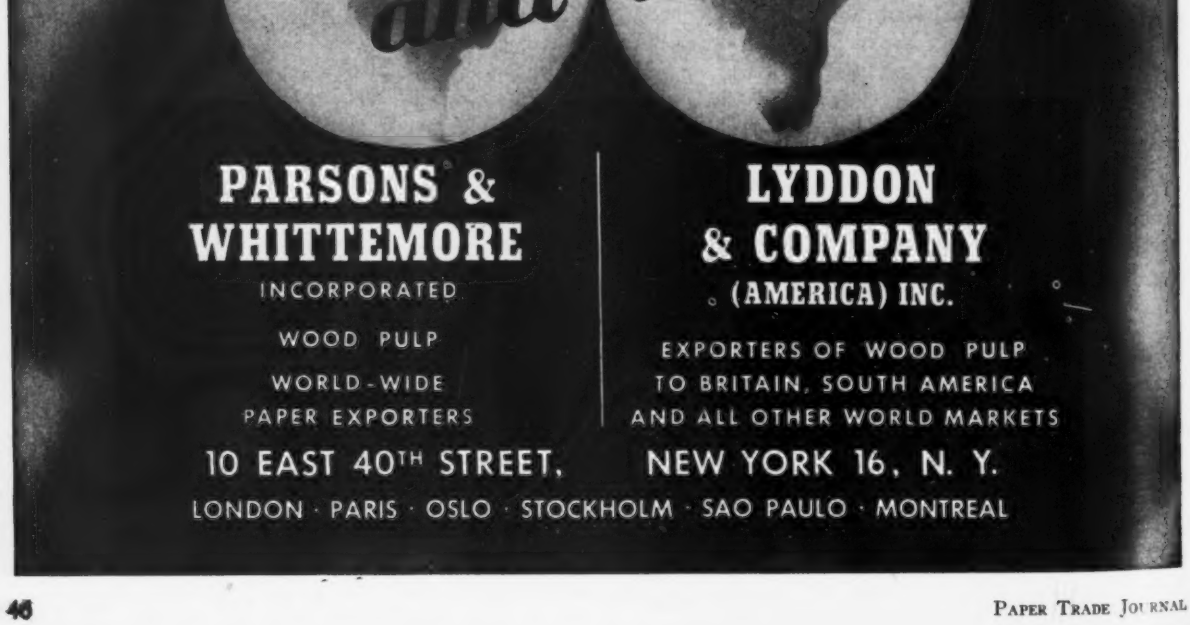
PAPERBOARD OPERATING RATIO†

Current Weeks—1948		Corresponding Weeks—1947	
January 31	103	February 1	102
February 7	100	February 8	104
February 14	101	February 15	102
February 21	99	February 22	103
February 28	101	March 1	102
March 6	*104*	March 8	102

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1947	99	103	101	100	101	101	90	99	96	101	99	89	98
1948	99	*100*											

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.



EDITORIAL

Giegengack's Record

As he takes that combination of skills and energy that he has demonstrated so abundantly at Washington into more rewarding commercial fields, Augustus Giegengack may look back on his career as Public Printer as a truly notable contribution to the Nation's economy. He set one record in the duration of his service in that post. He set others, and valuable marks they are, in the innovations that he introduced, the procedures that he leaves to his successor.

The war years and the period that followed have seen a tremendous expansion in the sale of department publications through G.P.O.'s Superintendent of Documents. Mr. Giegengack points out that sale volume is at the highest point in 53 years, with the unit cost of sales lower than it was in 1945. Through his modernization of the Public Documents Division, it was able for the first time, in 1947, to be entirely self-supporting, and returned to the Treasury an amount in excess of its entire appropriation.

Mr. Giegengack takes greatest pride in his organization of the commercial printing industry for participation in the production of war printing, which won him the Presidential Certificate of Merit as well as many testimonials from industry organizations.

Among the other improvements leading to better printing service for Government departments Mr. Giegengack on his retirement this week, cited the following:

Establishment of a cost accounting system which made it possible for the first time to charge Congress and the Federal departments and agencies the exact costs entering into production of each job.

Modernization and streamlining of physical equipment and replacement of obsolete machinery.

Creation of a Division of Personnel to facilitate observance of Civil Service Commission laws, rules and regulations. Extension, in 1936, of sick-leave benefits to GPO employes.

Creation of a Division of Typography and Design, which has been intrumental in lifting public printing out of the class of the commonplace while at the same time bringing about many economies in production.

Expansion of a small planning section, which merely wrote shop tickets, to a four-division planning organization which works out complete specifications and schedules for every job received. Under the present system service to the Federal departments and agencies has been immeasurably improved and the good relations with them reflect Mr. Giegengack's efforts to see that they get what they want at the time it is needed. "The Planning Divisions," he said, "are paying their way many times over by ordering every step of the work in the most efficient manner."

Appointment of a Consultant on Methods and Procedures who is charged with studying all office operations to be sure that they are abreast of the best and most modern methods in industry.

Inauguration of a joint research program for the printing industry, with Government cooperating, through the G.P.O., in a study of printing house management problems, production methods, material and supplies.

Mr. Giegengack used the Patents Office printing to illustrate the previous attitude of Government officials and industry leaders toward the GPO. It was claimed, prior to 1937, that enormous savings could be made by taking the printing of patents out of the Office and producing it commercially by the planograph method. Commercial printing houses had strong support in the appropriation committee, but the Public Printer proved conclusively that he could set up an organization and procedure which could do a far better job at lower cost. Since then there has been little serious criticism of G.P.O. service and charges, while its work has won uniformly high acclaim from Government officials and from industry leaders. Federal officials are almost unanimous in praise of the Public Printer's accomplishment.

Inventory Signals

The paper industry was among the four showing the largest proportionate increase in inventory holds in 1947 compared with 1946, according to a survey reported last week by the Department of Commerce.

The department reported that the leading industries in this respect were the paper, rubber, leather and apparel groups. It added that there was little stocking of purchased materials and goods-in-process among these industries.

Dollar value of manufacturers' shipments of paper and allied products, said the department, was $5.5 billions in 1947, based on preliminary figures, compared with $4.2 billions in 1946 and $2 billions in pre-war 1939.

The Department index of manufacturers' shipments of paper and products in December, 1947, was 280, compared with 291 in November, taking an average month of 1939 as 100; the index of manufacturers' inventories of paper and products rose to 251 in December, from 246 in November, based on an average 1939 month as 100.

W. A. Cook
Editor

VITAL TOOL FOR *Management!*

Use it to *SPREAD* the national debt!

WITH MANAGEMENT BACKING, PAYROLL SAVINGS PLAN CAN HELP BUSINESS AND NATION

In 19,000 companies, the Payroll Savings Plan (for the regular purchase of U. S. Savings Bonds) has made employees more contented in their jobs—has cut down absenteeism—has even reduced accidents!

In addition, of course, the Plan builds financial security for each participant. Each Bond pays $4 at maturity for every $3 invested.

But the Plan has other, far-reaching benefits—to business and to the nation—which are equally important to you.

SPREADING THE NATIONAL DEBT HELPS SECURE YOUR FUTURE

The future of your business is closely dependent upon the future economy of your country. To a major extent, that future depends upon management of the public debt. Distribution of the debt as widely as possible among the people of the nation will result in the greatest good for all. How that works is clearly and briefly described in the brochure shown at the right. Request your copy—*today*—from your State Director of the Treasury Department's Savings Bonds Division.

WHY EXECUTIVE BACKING IS VITAL

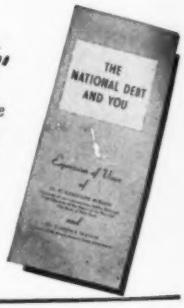
Employees still want the benefits of the Payroll Savings Plan. In fact, they *need* the P. S. P., because banks don't sell Bonds on the "installment plan"—which is the way most workers prefer to buy them. But wartime emotional appeals are gone. Human nature being what it is, the success of the Plan in your company is liable to dwindle unless a responsible executive keeps it *advertised*. The *reasons* for promoting it are as important as ever—to you, your company, and your country.

So—today—*check up* on the status of the Payroll Savings Plan in your company. *Act* on your responsibility to see that it is vigorously maintained.

The State Director will gladly help.

"The National Debt and You,"

a 12-page pocket-size brochure, expresses the views of W. Randolph Burgess, Vice Chairman of the Board of the National City Bank of New York, and Clarence Francis, Chairman of the Board, General Foods Corporation. Request your copy from the Treasury Department's State Director, Savings Bonds Division.



The Treasury Department acknowledges with appreciation the publication of this message by

PAPER TRADE JOURNAL

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and the Advertising Council

INDUSTRIAL DEVELOPMENT

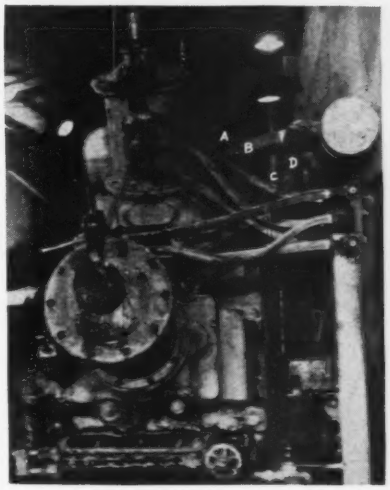
Where Synthetics Produce Brighter Groundwood Pulp

WEST TACOMA, Wash. — Seeking an immediate solution to their newsprint shortage problems, fourteen Pacific Coast newspapers formed the West Tacoma Newsprint Company a year ago and at an approximate cost of $3 million put a plant into operation which is now producing about 20,000 tons of newsprint annually.

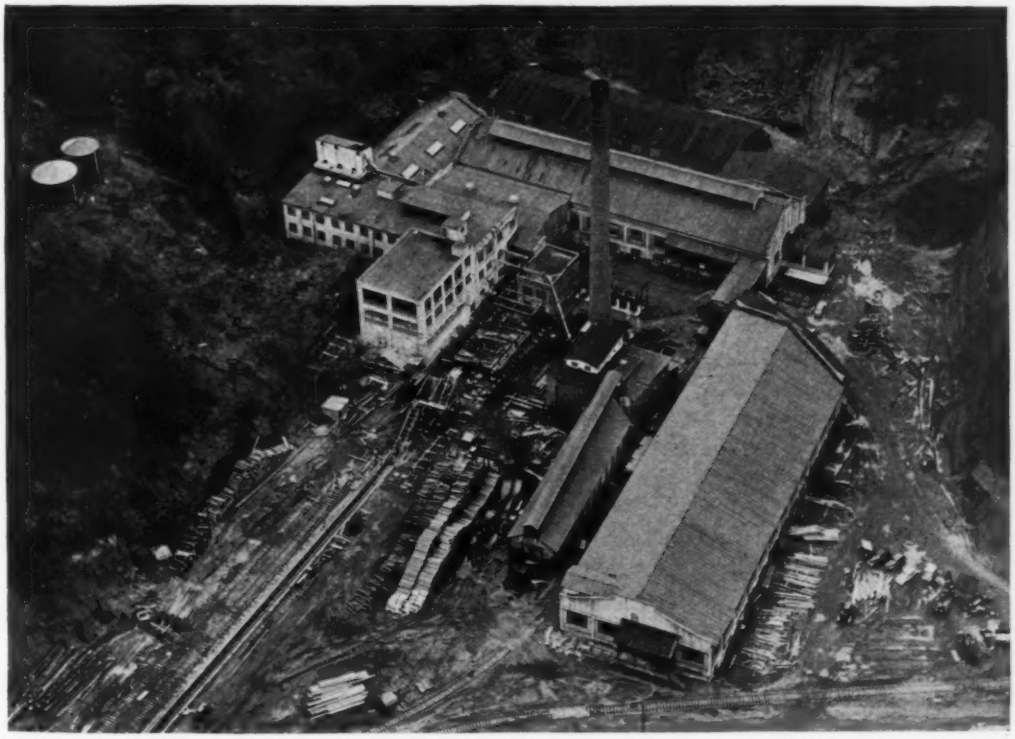
Two things mark the plant as unique. First, it is the only one in the nation designed and built by Cellulose Engineers, Inc. The Cellulose company now operates the plant under a management contract. Second, innovations in operation make it unnecessary to use a bleach, such as required by some newsprint mills to maintain a high color.

The paper plant itself, idle since 1937, formerly was owned by the Everett Pulp and Paper Company which operated it to produce book paper. Chief problem, then, was converting the facilities to newsprint production. With some revisions at the wet end and by addition of nine drier rolls, the 156-inch Pusey & Jones Fourdrinier paper making machine was utilized. This machine now operates at 700 feet per minute and when a fifth grinder is added it will be stepped up to 800.

One innovation which helped to maintain a bright color in the pulp was the use of synthetic, or chemical rubber in lining pipes and tanks. This work was done by Chemical-Proof Construction, Inc., which ap-



An innovation in the West Tacoma Newsprint Company plant is the ventilating of the four-pocket grinders by four-inch rubber tubes (A, B, C, and D) which carry the steam to a 12-inch sheet metal pipe through which it is pulled to the roof of the plant by a fan. Carrying off the steam improves the color of the ground wood pulp.



Air view of the $3,000,000 newsprint plant of the West Tacoma Newsprint Company at Tacoma, Wash. Owned by fourteen Pacific Coast newspapers, it is operated by Cellulose Engineers, Inc.

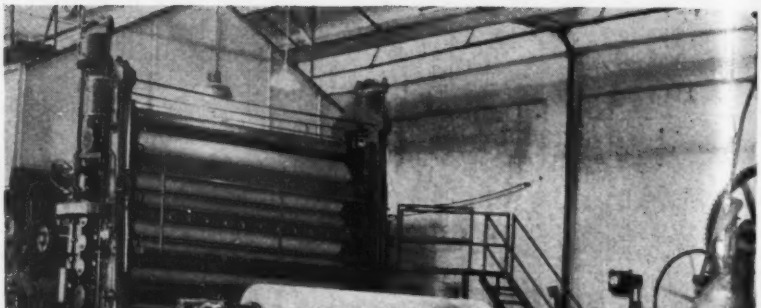
plied Neoprene to grinder flume, all pipelines, pump, and headbox on the paper machine. Durofilm was applied to all equipment not treated with Neoprene, such as the decker tanks. No distinction was made in use of the two materials and their availability at the time dictated which one was to be employed on a particular job.

Ventilation of the grinders is another factor which helps to produce a high quality, light colored, ground wood pulp. This is accomplished by a suction fan on the roof of the plant which draws the steam from the grinders through a 12-inch sheet metal pipe. Steam from the four-pocket grinders is carried to this pipe by means of a four-inch rubber tube from each pocket.

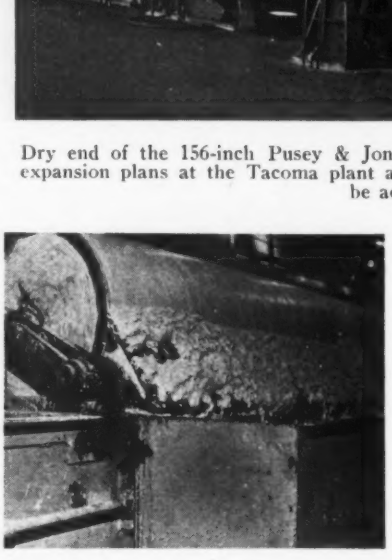
The G. E. brightness range of the newsprint ranges from 51.5 to 54, with 53.5 or 53 about the average. One element in maintaining this brightness is the use of about 10 percent of cottonwood as pulpwood, with hemlock accounting for 70 percent and fir or spruce for 20 percent.

Tentative expansion plans include installation of a 218-inch paper making machine which would boost the plant's output to 80,000 tons annually. Cost of the program would range from six to seven million dollars.

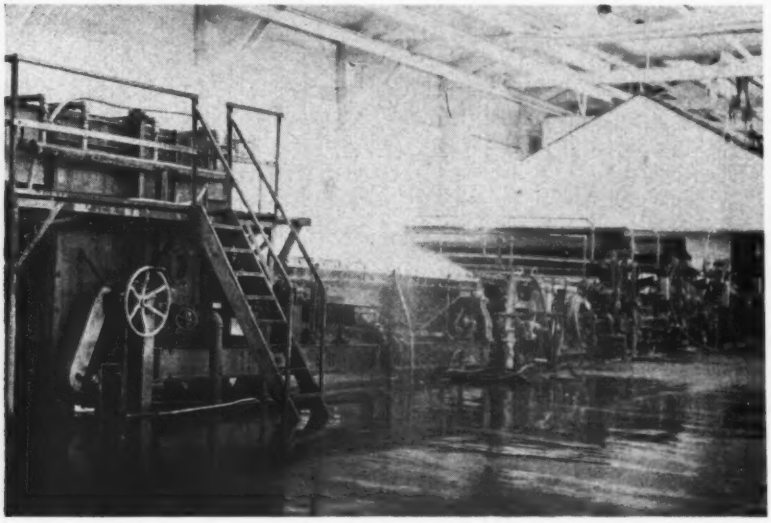
Frank Baker, publisher of the Tacoma News-Tribune, is president of the West Tacoma company. Neil Robertson is mill manager. The newspapers which are member-owners of the company are: Tacoma News-Tribune, San Diego Union Tribune, Los Angeles Times, Oakland Tribune, San Francisco Chronicle, Sacramento Bee, Fresno Bee, Modesto Bee, Bellingham Herald, Everett Herald, Daily Olympian, Yakima Herald, Aberdeen World and Eugene Register-Guard. Approximately 18 percent of their newsprint needs are supplied by the Tacoma plant.



Dry end of the 156-inch Pusey & Jones paper making machine. If tentative expansion plans at the Tacoma plant are carried out, a 218-inch machine will be added.



The decker tanks, such as this one, are lined with Durofilm which, with the use of Neoprene on other equipment, helps to maintain a high color in the pulp.



Wet end view of the Pusey & Jones machine in the Tacoma plant which operates at a speed of 700 feet per minute. When a fifth grinder is added this speed will be upped to 800 feet.

Manhattan Rubber Issues New Condensed Catalog

PASSAIC, N. J.—Printing of the sixth edition of "Manhattan Rubber Products for Industry," a condensed catalog of mechanical rubber goods, has been completed by the Manhattan Rubber Division, Raybestos - Manhattan, Inc., Passaic, N. J.

Mechanical rubber products and special items manufactured by Manhattan Rubber are described in the publication, with particular emphasis given to transmission and conveyor belting, V-belts, hose, engineered molded products, rubber-roll coverage, tank linings and abrasive wheels.

Copies available on request to manufacturer.

Thwing Booklet Describes Tensile Tester

PHILADELPHIA—Concise information about the Thwing-Albert Electro-Hydraulic Tensile Strength Tester and its 12-year reputation for performance is contained in booklet P-478 just released.

Included in the 15-page booklet is a brief historical background of the instrument, breakdown into component parts, diagrams and pictures, models and ranges available, operational details, accessory items and standard range calibrations.

The Paper Industry Attacks Problems of River Pollution

A method of neutralizing and eliminating wastes from rivers, so far as those wastes are of paper mill origin, was reported last month by the National Council for Stream Improvement. The method, it is disclosed, has reached the pilot plant stage, near Kalamazoo.

Kalamazoo, Michigan, was selected by the National Council as the location for expanding its deinking project largely because of the concentration of deinking mills there. Preliminary work at Mellon Institute had indicated the necessity of carrying the deinking project into the field where it would be possible to study the deinking process in the mills as it affects the waste discharged, to study the effect of the waste on the river as an indication of the treatment which might be required and to develop treatment methods on a pilot plant scale.

Laboratory space and assistants were provided for in an agreement with Kalamazoo College and the project was initiated in the latter part of 1935 with Mr. Philip F. Morgan in charge. Arrangements were also made with the University of Michigan for the consulting services of Dr. G. M. Ridenour and Dr. D. W. McCready.

During the first year and a half, surveys were made at several mills to determine the quality and quantity of deinking waste discharged. Detailed material balance surveys of the deinking operations were carried on to determine the source of the various components of the waste in the deinking process. Laboratory stock washing studies were carried out during this same period to develop a laboratory procedure which would be suitable for measuring the variation in organic material for the various methods of stock preparation.

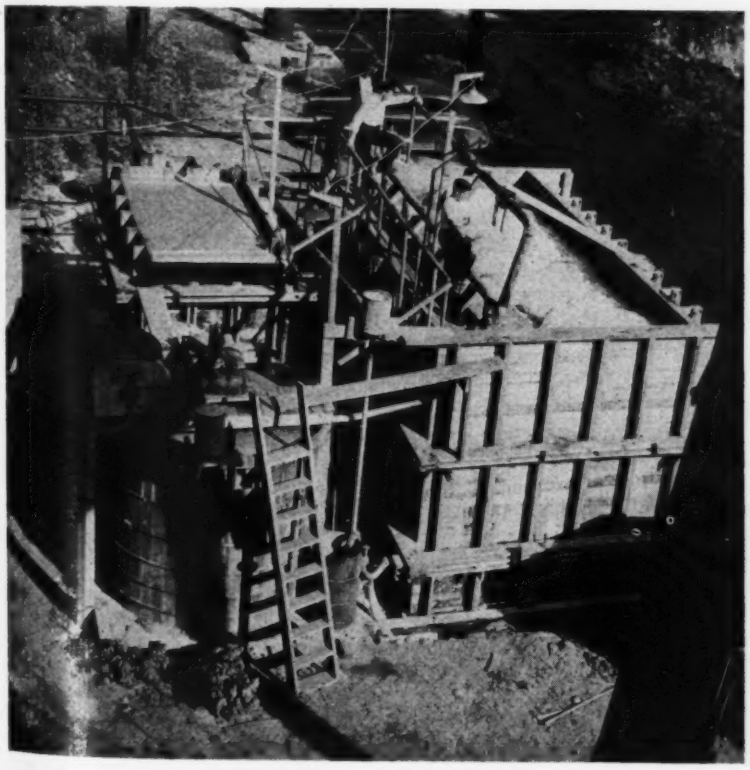
During the summer of 1946, a complete river survey of the Kalamazoo was completed in cooperation with the Michigan Stream Control Commission. This involved total waste surveys at all member mills in the valley, cross-section surveys of the river at frequent intervals in the area of critical oxygen levels and summertime sampling of the river for oxygenation studies for the twenty mill length of the river below the City of Kalamazoo.

Development of biological treatment methods for treating the deinking waste was started on a laboratory scale when it was found that approximately 80 per cent of the objectionable organic material, as measured by the B.O.D. test, was in true solution in the waste and could not be removed by any of the conventional methods of clarification.

This was continued until results indicated that consistent B.O.D. removals of 70 to 80 per cent were being obtained. A pilot plant was then designed and built during the spring of 1947 at the Michigan Paper Company mill at Plainwell as a cooperative project with the mill. In this plant the settled waste leaving a clarifier is discharged into an aeration tank to start the secondary treatment process. Air is continuously diffused into this unit to provide the oxygen required by the biological life which develops in the tank and to maintain circulation of the tank contents. A trace of sodium nitrate is continuously added to this tank to accelerate the biologicalcal process. The development of the biological life provides a means for converting the organic material in solution in the settled waste into a part of the organic life so that it can be separated from the waste by simple sedimentation.

The aerated waste flows out of the aeration tank into the final sedimentation tank where the biological sludge settles to the bottom and the treated waste flows out to the river. The biological sludge which settles to the bottom is continuously pumped back to the inlet end of the aeration tank to continue the treatment process at the maximum rate. Excess biological sludge which is not returned is withdrawn from the process.

The pilot plant was operated continuously from the middle of July until the end of November and the operating data obtained indicates that the process is successful in removing 60 to 70 per cent of the B.O.D. present in the raw waste with aeration periods of 6 to 8 hours. The pilot plant served to develop the process to the operative state where evaluation in a full scale unit is indicated for establishing the suitability and economy of the process in coordination with existing manufacturing operations.



Pilot Plant for study of de-inking waste treatment problems, at Plainwell, Mich.

New Talismanic Line Brings Plant Growth

CHICAGO—The John C. Chambers Company, manufacturers of Talismanic Belt Dressings, has decided on a program for the improvement of its 50-year-old line. After careful study and laboratory research, a practically new line was introduced including a rubber belt dressing which definitely stops deterioration of rubber. The greatly increased sales volume, resulting from the introduction of new and improved Talismanic belt dressings, necessitated an extensive building program which was completed in 1947.

The direct-to-user sales policy of the Chambers company is effectively handled by traveling salesmen. The plant and main office is in Chicago.

EQUIPMENT AND SUPPLIES

O-Kni-Co-Lok Eliminates Rivet Trouble

CINCINNATI—Wide acclaim from the nation's paper mills and converting plants has reputedly been given the recent development of Ohio Knife and its new O-Kni-Co-Lok slitter assembly which eliminates rivet trouble in knife assembly.

Shown in illustration is the O-Kni-Co-Lok disassembly. Note the small projecting button which slips into any of the holes designed for all rivet type slitters. This holds knife firmly in place and knife is locked to shaft. The slitter knife when locked is then held firmly without slipping. The nut continues to tighten as the assembly revolves on the bearing shaft of hardened steel. Complete assembly is made in a few seconds. The knife can be removed in a few seconds by unlocking with spanner wrench.

Further information from Ohio Knife Company, Department L., Cincinnati 23, Ohio.

The O-KNI-CO-LOK disassembly. Ordinary slitter knife is in center. Note small button on the O-KNI-CO-LOK which fits into any rivet hole on slitter knives of this type.

Gilraph Constructs Slitter Of Welded Steel

NORWOOD, Mass.—Of welded steel construction with sealed anti-friction bearings on all shafts, the slitter and winder illustrated is one of a line of modern, high-speed, trouble-free machines built by Gilraph Machine Engineering Corporation for a leading friction tape manufacturer.

Featured also are thru-hardened, high chrome, high carbon steel anvil rolls mounted on a soft steel core and easily removable for grinding; new type knife holders, sealed ball-bearing equipped, individually removable and adjustable: new Core-Loc Arbor, vacuum-edge control, clutch control friction and speed control. Slitter cuts to 60" material and to ½" wide. Unit can be equipped with either single or double rewind arbors.

Further details from manufacturer, address 506 Washington Street, Norwood, Mass.

Reliance Markets Liquid Level Alarm

CLEVELAND—A new device to set off warning signals—bells, sirens or warning lights—when liquid levels in small boilers or various types of tanks reach predetermined low or high levels is a product of the Reliance Gauge Column Co., 5902 Carnegie Avenue, Cleveland, and is known as the "Levalarm."

The device is said to be of sturdy construction but sensitive to slightest water level variation, and can be used on pressures up to 250 pounds.

An electric switch is operated through the agency of a permanent magnet when a monel float rises or falls in a separate float chamber. The switch can be wired for a normally-open or normally-closed circuit, and is dust, vapor and explosion-proof.

New Safety Goggle Marketed By Univis

DAYTON, Ohio—Years of research for a material that would incorporate the lightness, comfort and added safety features of plastic but resist surface scratchings have brought forth SAFE-T-VIS, a new type of safety goggle now being marketed by the Univis Lens Company, manufacturers of bifocal and trifocal lenses for ophthalmic use.

Made of an allyl casting resin, a brand new kind of plastic for this use, meeting all these requirements and providing many times the surface hardness of any other plastic used for eye protection, one SAFE-T-VIS lens is approximately one-half the weight of a case-hardened glass lens. Workers can wear them without discomfort throughout the period of exposure.

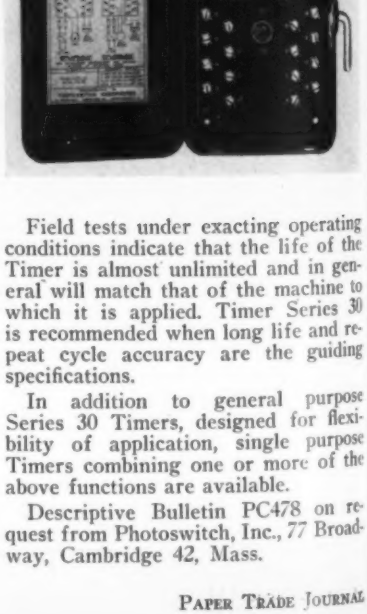
SAFE-T-VIS lenses are available in four goggle styles and in a selection of sizes. This and other pertinent information concerning the standards and control for which Univis is recognized in the ophthalmic field is contained in an illustrated brochure which can be obtained by addressing The Univis Lens Company, Dayton 1, Ohio.

Photoswitch Produces Electronic Interval Timer

CAMBRIDGE, Mass. — Recommended for the control of hydraulic presses, chemical feeders, spot welders, grinders, conveyors, drilling machines, photographic printers, and similar equipment, Photoswitch Electronic Timer Series 30 is designed for machinery and process control. It has a range of from .03 seconds to four minutes.

Timer Series 30 provides for all basic types of timing through simple terminal panel connections and may be wired to provide interval timing, delayed action, automatic repeat, and programming as well as many variations of these.

The unit has a repeat cycle accuracy of 2 per cent. The basic circuit has been carefully designed so that it is self-compensating for changes in line voltage. As a result accuracy does not change from day to day, nor will vacuum tube replacement alter the time setting.



Field tests under exacting operating conditions indicate that the life of the Timer is almost unlimited and in general will match that of the machine to which it is applied. Timer Series 30 is recommended when long life and repeat cycle accuracy are the guiding specifications.

In addition to general purpose Series 30 Timers, designed for flexibility of application, single purpose Timers combining one or more of the above functions are available.

Descriptive Bulletin PC478 on request from Photoswitch, Inc., 77 Broadway, Cambridge 42, Mass.

NEW LITERATURE

Brown Describes Instruments For the Paper Industry

PHILADELPHIA — Describing the Moist-O-Graph and Modified Area Meter Body as typical examples of equipment designed specifically for measurement problems of the pulp and paper industry, the Brown Instrument Company's new 80-page catalog "Instrumentation for the Paper Industry" illustrates some of the many instrument control systems in current use.

Included in the 26 typical process control instrumentations are rotary and spray type sulfur burning systems, measuring tank controls, recovery and lime kiln instrumentation, dryer controls, moisture measurement and bleach plant instrumentation. Each application is presented with complete schematic drawings and general specifications. Other Brown instruments used in paper applications are described with photographs and specifications. A section of the catalog also is devoted to bulb specifications, thermometer recording, scale and temperature-pressure charts.

Catalog is known as Bulletin 2801 and is available upon request to the Brown Instrument Co., Wayne and Roberts Aves., Philadelphia 44.

Ohio Gear Releases New 120-P Catalog

CLEVELAND—An entirely new type of Stock Gear and Reducer Catalog has just been released by the Ohio Gear Company, 1323 E. 179th St., Cleveland 10, Ohio. Chief feature is a new method whereby all essential information regarding a particular gear or reducer has been grouped in a single location. Confusion is eliminated. Cross reference has been reduced to a minimum.

The book is practical, helpful, complete. It is divided into sections on Reducers, Gears, Chain and Sprockets and includes more than 120 pages of engineering data, tests, ratings, ratios, formulae, tables and costs. Performance and informational material has been simplified. Every detail has been pointed toward easy, convenient use.

Of file size and profusely illustrated in two colors throughout, the new catalog is designed to lie flat on the desk or drawing board and is sturdily bound in heavy covers to withstand hard usage.

Designers, engineers and those responsible for the development and maintenance of machines and drives will find the new catalog full of practical, everyday help.

Jones Bulletin Describes High Speed Refiner

PITTSFIELD, Mass. — A new bulletin number EDJ-1011 describing and illustrating the Jones High-Speed Refiner has just been issued by E. D. Jones & Sons Company. The contents describe the uses and results obtained from typical applications of the Refiner. The bulletin illustrates the various features and general arrangement together with specifications and other pertinent data.

Cochrane Bulletins Cold Process Softener

PHILADELPHIA — Detailed explanations of its recently publicized cold process softener, Rapid Reactor, is contained in Publication 4425 of the Cochrane Corporation, 17th and Allegheny, Philadelphia 32.

Described as meeting widespread application in industry for the conditioning of process cooling water and boiler feed, the Cockrane Rapid Reactor combines basic elements of equipment for mixing, floc formation, settling and thickening in a single reaction vessel. Chemical reagents may be introduced for coagulation of turbidity alone, for partial softening with coincident turbidity, or for complete softening and turbidity reduction.

Three general designs are pictured in the new publication covering ranges to 100 g.p.m., from 100 to 500 g.p.m., and from 500 to 3,000 g.p.m. Chemical proportioners, filters and other auxiliary accessories are described and illustrated. Typical installations are described covering both gravity and pressure flow applications.

Booklet available from Cochrane Corporation or, in Canada, from Canadian Allis-Chalmers Ltd., 91 Yonge Street, Toronto 1, Ont.

Witco Publicizes Activities and Products

NEW YORK—An over-all picture of Witco Chemical's present-day activities is presented in a new booklet entitled "This Is Witco . . . At Work with Industry" illustrating its four research laboratories, nine manufacturing plants and pilot plant.

The booklet provides a behind-the-scenes inspection of Witco's broad yet specialized facilities through which it continues its work of providing chemicals for industry begun a quarter of a century ago. Copies are distributed through Witco at 295 Madison Ave., New York 17.

Houghton Line Contributes Handbook on Hydraulics

PHILADELPHIA — Another handbook has been published by E. Houghton & Company, 303 W. Lehigh Street, Philadelphia 33, this time supplying helpful data on a subject of great interest—Hydraulic Oils.

In five of the seven chapters of this 48-page book, the discussion is confined to general treatment of this important phase of successful, hydraulically-operated mechanisms. The last thirteen pages are devoted to Houghton experience in fortifying hydraulic oils by scientific treatment, generally admitted as a necessity to assure trouble-free service.

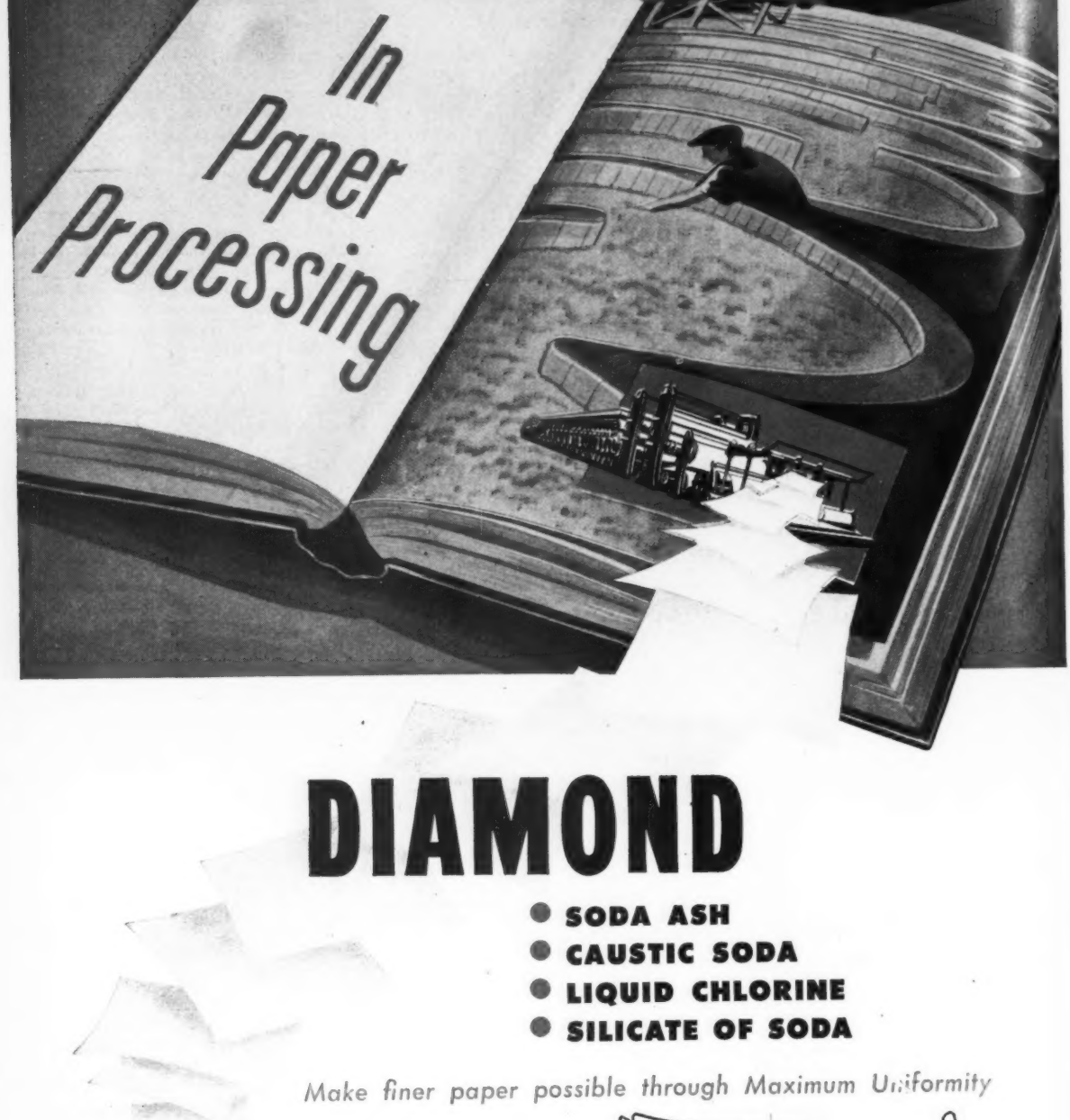
Chapters of the book are: "Specifications—Their Value and Their Weakness," "Importance of Other Properties Not in Specifications," "Additive Treatment of Hydraulic Oils," "Trouble Shooting," "Summation of Qualities a Good Hydraulic Oil Must Possess," "Hydro-Drive Hydraulic Oils," "Houghton Service." Write Houghton Company for free copy.

Bearing Trouble Analyzed In Coupling Booklet

ERIE, Pa.—Answer to some old problems of power transmission loss and prematurely worn bearings is revealed in a new booklet entitled "Relief from Bearing Wear Grief." Preventives of the destructive waste of downtime caused by bearing failure, shaft failure and damaged equipment through the improper coupling of rotating shafts also are explained.

This 24-page, three-color booklet describes the functions of flexible couplings and presents practical helps to design engineers, plant engineers, master mechanics and maintenance men on how the use of proper couplings prevents downtime caused by bearing failure, shaft failure and damaged equipment. A thorough explanation and analysis is given to the principles by which couplings operate and their importance in relationship to the equipment it connects.

In addition, description and illustrations show how the operation of the American Flexible Coupling compensates for end thrust and the three types of shaft misalignment. A section of the booklet describes the maintenance of this coupling and how its life can be renewed at a minimum of cost in downtime and labor. Available from Dept. C-1, the American Flexible Coupling Company, Erie, Pa., division of the J. A. Zurn Mfg. Co.



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122 E. 42nd ST., NEW YORK 17, N. Y. Edited By R. G. MACDONALD, Secretary

Industrial Training at Union Bag and Paper Corporation, Savannah, Georgia*

By J. H. Groves[1]

Abstract

Union Bag and Paper Corporation, instead of abandoning or curtailing its war-born training program as a number of industries have done, is expanding this activity into a peacetime effort to attain the full potentialities of training as an effective industrial tool.

The paper briefly reviews the reasons for the establishment of the training program at the Savannah plant; points out the relationships between line supervision and the training staff; describes what has been done and indicates some additional actions that are planned in the fields of job, trade extension and supervisory training; discusses the essentials of effective training; and lists some of the results that have been obtained and which might reasonably be expected from any similar program.

Training is the systematic formation of habits of thought and action. The field of industrial training, as it is recognized at the Savannah plant of Union Bag and Paper Corporation, includes any individual or group instruction, given at any level by any agency, that will contribute to the further development of the intelligence and skill with which the individual employee, either supervisory or nonsupervisory, performs his duties.

The Training Problem

The basic industrial training problem is one of effective development of the abilities of individual employees to meet efficiently the requirements of the organization.

The training needs at any plant are created by the usual industrial occurrences of new employment, turnover, necessity for versatility, promotions, introduction of machines and equipment of new design, development of new methods and new products, increased quality and quantity requirements, legislation and agreements affecting employer-employee relations, and other factors. At Savannah these needs have been accentuated by the rapid plant expansion, by the diversification of products, and by the inexperience of a greater part of the new employees.

Union Bag's Savannah operations began in the summer of 1936 as a one-unit pulp and paper mill and a small grocery bag factory. The operations now consist of a five-unit pulp and paper mill with a daily output of 1100 tons of kraft paper and board and some processing of creped and waxed papers; a bag factory producing daily 30 million bags in a wide range of standard, special, and multiwall constructions; and a two-unit box plant turning out a variety of corrugated shipping containers; all augmented by technical, industrial relations, and administrative and accounting divisions. Employment has increased from 700 in 1936 to the present total of 4600 including 1200 women.

While employment has leveled off with the recent attainment of immediate postwar expansion plans, diversification of products will continue to be required by new developments in special papers, bags and boxes.

Savannah is a seaport city whose business activities have always revolved principally around the distribution of goods by rail and water. Now that wartime shipbuilding has ceased, Union Bag is the city's largest industry, as well as being its first, and up to now almost its only mass production enterprise of any appreciable size.

Naturally, there has been brought into this growing organization a number of experienced supervisors, technicians and skilled workers from other Union Bag plants and from outside concerns. But by far the greater number of employees have been drawn from Savannah and its immediate vicinity. These people have come with a few usable skills, except in maintenance and office work, and many have come without previous industrial experience.

Approach to the Problem

In the spring of 1944 a training department was established to implement and coordinate an expanded program for training employees of the Savannah plant. This was a considered step, taken by a management faced by increasing wartime difficulties of maintaining an efficient working force, to realize still further upon the benefits that had accrued from occasional participation in federally-sponsored war training procedures, from previous actions taken to improve the training of new employees in the bag division, and from the traditional pulp and paper mill job instruction.

The training department consists of two men, with the director reporting to the industrial relations manager.

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 23-26, 1948.

[1] Training Director, Union Bag and Paper Corp., Savannah, Ga.

While the training staff has had some experience in the direct supervision of instructors and trainees in two production departments, it now operates, except for the conducting of instructor training and supervisory conferences, entirely in a staff capacity.

Operation of the Savannah training program is a cooperative venture between line supervision and the training staff. Line supervision has the primary responsibility of training its men or seeing that they are trained; the training staff has the responsibility of giving technical assistance to line supervision in the formulation and operation of effective instruction.

From the first, those responsible for the establishment and operation of this activity have had in mind the ultimate installation of a comprehensive, plant-wide program in the closely related and often overlapping fields of job, trade extension, and supervisory training. The exigencies of war, however, required for some time almost undivided attention to the initial training of the tremendous influx of inexperienced workers necessary to keep going essential production, and only in the past 18 months has it been possible to devote any appreciable attention to the further training of more experienced workers and of supervisors.

Job Training

Job training is that day-to-day instruction given during working hours on the production floor, at the bench, at the desk, and at any other working place, for the purpose of initial breaking-in on the job, improvement on the job, and preparation for the job ahead. In some form or other, every industrial employee receives job instruction daily; the supervisor, and often the skilled worker, also gives job instruction daily.

Efforts in this field at Savannah have been devoted principally to improving the instruction of new employees. There has been developed an induction period, through which all new employees pass when first reporting to work, and which is intended to give them certain basic information, and to condition them to some degree for entrance upon Union Bag employment and for the development of proper work habits and desirable attitudes. With the realization of the importance of the immediate and effective development of these habits and attitudes in the newcomer, some additional instructional plans have been developed with, and some training in instructional methods given to, those performing the well-established traditional pulp and paper mill job training; in the bag division, instructional plans and outlines have been developed and instructors have been selected and trained; and in the box division instructional plans have been prepared and supervisors and skilled workers trained to act as instructors.

To a smaller extent similar efforts have been made to improve the job training that occurs after the breaking-in period is over. This process of learning, often referred to as "getting experience," leads to improved performance and promotion. It seldom receives the attention that is devoted to training for beginning jobs, although it is only too true that, unless there is some use of good instructional procedure, the employee getting experience is often only practicing repeatedly his own mistakes and those of others.

Trade Extension Training

The use of trade extension training is receiving increased attention at Savannah as a means of more rapidly and completely developing the skills and attitudes of both supervisory and nonsupervisory employees. Designed to supplement job experience and to extend occupational knowledge and skill, this type of instruction is given through organized courses taught at the plant, single meetings held at the plant, courses offered at local educational institutions, and correspondence.

In some organized classes, operated entirely by the company, particularly those given in connection with a special job training effort, attendance is required although the meetings are held after work hours. Typical examples of this include recent instruction for adjusters preparatory to the installation of new bag machines, and for inspectors who were being prepared for the introduction of new methods of quality determination and control. Other occasions where attendance was required include first-aid instruction given by the safety department; and a course covering assistance to visitors and employees, fire prevention, laws and methods of search and arrest, obtaining and presenting evidence, and other matters pertaining to the duties of the plant protection force. The decision to require class attendance is always made by the supervisor concerned. Employees not exempt from the provisions of the Wage-Hour Law are, of course, duly compensated for any off-hour attendance at required classes.

The leading extension training activity at the plant, however, consists of organized leisure-time courses, in which participation, although it may be encouraged, remains strictly voluntary.

Blueprint reading for maintenance mechanics and helpers is given once or twice each year in 2 units of approximately 20 hours each. The first unit covers basic instruction in the interpretation of conventional lines, views, scales, dimensions, full and half-section views, notations, and symbols; while the second unit is devoted to practice in reading actual prints used in the departments in which the students are employed.

Two short courses in electronics were given recently as a result of the increased use of electronic register controls on bag machines, and of the installation of a new paper machine with electronic speed regulation. The first unit, given for both mill and bag division electricians, consisted of a study of electronic tubes and their action in electrical circuits. The second unit, given to mill division electricians, was a further study of the electronic controls on the new paper machine. Part of this latter study was conducted while the equipment was being installed and the remainder after it had been placed in operation, so that questions arising from the operation could be considered.

Other subjects that have been taught at various times include combustion, shop mathematics, elementary mechanics, pipe layout, theory of bag compensation and principles of register control, and use of the slide rule.

These voluntarily attended courses are organized as the result of requests from supervisors and from workers, or from the determination of need by other means. They are open to all employees whose occupations are related to the subjects being taught and who are interested in attending. There is no cost to the students other than the purchase of any required texts or other material, sold to them at cost through the store room.

These courses are given in short units of from 15 to 20 or 40 hours, with one or two 2-hour classes per week held immediately before or after shift change. These practices are followed because of the employed adult's preference for leisure-time training in compact form, and also to facilitate attendance, since no employees live within walking distance of the plant.

Instructors for trade extension courses at the plant are selected from occupationally qualified plant personnel and are trained and supervised by the training staff. The lone exception to the use of plant personnel has been the

visiting installation expert who consented to conduct the extension training on paper machine electronic controls. Engineering, Science and Management War Training, working through the Georgia School of Technology, assisted in the combustion training; and the Savannah Vocational School, aided by state and federal vocational education funds, has assisted in the blueprint, shop mathematics, pipe layout, and elementary mechanics courses. All other trade extension classes at the plant have been conducted entirely by the plant personnel.

A less thorough trade extension activity is the holding of single meetings on specific subjects at the plant. These meetings, usually informational in nature, and held either during or just after work hours, with voluntary or required attendance as desired, are most often conducted by representatives of equipment manufacturers and occasionally by plant personnel. The subjects are presented through films, discussions, or a combination of both. Among the subjects presented during the past year were operation and care of typewriters and calculators, telephone courtesy, gas and oil firing of boilers, antifriction bearings, arc welding, and operation and care of electric trucks. A short course in filing given downtown by an office supply firm was utilized recently to good advantage.

During 1947 the total enrollment in the organized trade extension courses at the plant was 434, and the total attendance at single meetings on various subjects was 856.

Additional trade extension possibilities occur in courses offered by the Savannah Vocational School; by the city-operated Armstrong Junior College; and by such correspondence institutions as International Correspondence Schools, LaSalle Extension University, and International Accountants Society. Vocational school courses tend to be more strictly of a trade extension nature than do many of those of the junior college, while correspondence courses are trade extension in nature if properly selected. All three, however, are sources of training that will contribute to the occupational development of various levels of employees. From time to time a number of employees have attended classes in electrical and mechanical subjects at the vocational school; in physics, chemistry, and public speaking at the junior college; and in mathematics, English, shorthand, and typing at both institutions. At the present time some fifty employees are pursuing correspondence dustrial management, accounting, and general high school subjects.

Supervisory Training

The changing conditions at Savannah which were outlined earlier have intensified the need for developing in the supervisory force additional knowledge and skill in both the technical and the human relations phases of the supervisory job. In addition to the job and trade extension training, which contribute principally to development in the technical phase, the Savannah plant operates, through the conference procedure, training designed for further development of the supervisor's human relations ability.

The objectives of the supervisory conferences are first, to develop or to further emphasize the supervisory point of view—that is, the realization by the supervisor that his thoughts and actions must be directed towards establishing and maintaining the efficiency of those people through whose efforts he obtains his results, and for whose performance he is accountable to those higher in authority; and second, to assist the supervisor in formulating ways and means of discharging his responsibilities from this point of view.

The conferences are conducted in series of ten meetings of 1½ hours each, held usually once or twice each week on company time, and attended by groups of from eight to fifteen supervisors of aproximately equal rank in the organization. Conference leaders are selected from the training staff and from top supervisors, all of whom have been trained in the conference procedure.

The topics discussed to date include supervisory duties, leadership, giving orders, discipline, information the supervisor should have about his men, worker inefficiency, safety, and job training. The subject matter is developed from the experiences of the group through the exchange of ideas and information and, consequently, the group members actually instruct each other. In all discussions emphasis is placed on the supervisor's definite responsibility in all matters affecting the work of his employees. The analysis of any specific problem is made through the determination of the actual underlying cause, as expressed in terms of human failure; and the determination of what the supervisor can do with or for the person responsible in correcting the situation and in eliminating or reducing the probability of its recurrence.

Of the aproximately two hundred fifty supervisors at Savannah, one hundred twenty participated in one series of conferences during 1947, bringing to two hundred the number that have taken part to date.

As a basis for the expansion of the scope of this activity, top supervisors in each division recently rated, in terms of relative value to their subordinate supervisors, seventy proposed subjects listed under the topical headings of general information, labor relations, the supervisor's job, dealing with employees, safety and first aid, production, costs, and training methods.

Essential Principles

In carrying out the activities just reviewed, every effort is made to adhere to certain essential principles upon which any industrial training program depends for successful operation and for obtaining maximum results. Briefly, these essentials include:

1. Recognition, voluntarily or otherwise, by the supervisors of those to be trained that there exists a need for improvement of the individual that can be met by specific training. Requests for training assistance are often received from supervisors, but the training staff does not hesitate to call to supervisory attention any indication of needs.

2. Recognition by the prospective trainee, particularly when voluntary attendance is involved, that he needs and probably will benefit from training. Care must be taken, however, to avoid creating any erroneous impressions regarding immediate advancement as a result of his participation.

3. Carrying on of all training as far as possible by the employees' line supervisors. Certainly, the supervisors must direct, and often give, training on the job; they also must be in accord with the offering of all other training, and are the greates source of occupationally qualified trade extension instructors and conference leaders.

4. Use of authentic training content that is specifically aplicable to the needs of the individual. The supervisors concerned, the prospective instructors, and often other skilled workers, should participate in the development of instructional material at the plant, and in the selection of any readily available texts and other material.

5. Use of carefully selected and trained instructors and conference leaders. Although selected on the basis of recognized occupational proficiency, leadership, patience, willingness to help others, and other factors, these people must have or acquire the mastery of the elements of good

instruction or good conference leading. It is generally true that the successful supervisor has already developed in himself many of the essentials of good instruction, although often he is not aware that they are teaching fundamentals.

6. Treatment of the person being trained as an employed adult, and not as an adolescent schoolboy.

7. Placement of emphasis on mastery of the subject, rather than on the time spent in training. In trade extension classes this calls for individual instruction, as a means of caring for the pronounced individual differences found in industrial groups.

8. Satisfaction of the human desires for recognition of achievement. Those who meet established standards of participation and performance in trade extension and supervisory training at the Savannah plant receive appropriate certificates, which are signed by the resident manager and the training director, delivered by the division manager or another top supervisor, and frequently publicized in the magazine issued by the employees.

9. Permanent recording of individual performance in in training activities, as a matter of justice to both employer and employee at times when individual records are reviewed. At Savannah all performances, good or bad, in trade extension and supervisory training at the plant,together with such similar information as is received from outside institutions, are reported to supervision and also become a part of the individual's permanent personnel record.

Measuring Progress

A frank appraisal of the present status of this program will immediately bring to light certain shortcomings and omissions. There are still the challenging necessities for bringing to some supervision a better understanding of the place systematic training has in the industrial process, for improving existing training, and for developing additional training.

The planned job instruction now going on can be improved and should be extended to some jobs not now covered. In the trade extension classes there are still too many drop-outs, and too many non-participants who could benefit from this activity; and there is the need for additional developments, such as pulp and paper courses. Since in 15 hours there can only be laid the groundwork for any needed changes in habits that have been developed over a period of time, the full benefits of the supervisory conferences can be reached only through expansions in scope and in supervisory participation sufficient to cause all supervisors to reach the stated conference objectives. In addition to the conferences, there must be developed some intensive preliminary instruction for newly-appointed supervisors. Such training would include an outline of supervisory responsibilities; information concerning the company and its products; explanation of the labor agreements; and explanation of company policies and procedures in employee selection and training, safety, first aid, personnel practices, stores requisitions, costs, and other matters that the new supervisor must handle.

On the credit side, an appraisal will show definite progress in the development of the individual employees and, hence, in that of the organization as a whole.

New employees are being adjusted to their environment and trained to production efficiency more quickly, and older employees are more readily adjusted to the operation of new equipment and the use of new methods. Both workers and supervisors are aproaching their daily problems with increased understanding and skill, and supervisors have acquired a better conception of the worker as an individual. Training costs have been reduced, turnover is lower, and production efficiency has improved. New equipment has been started with less difficulty than had been anticipated. Methods of doing jobs have been standardized as a result of analyses made for training purposes. Top supervision has found the conference leading techniques in which they were trained to be useful in conducting meetings with subordinates and with representatives of the employees.

Many results of training do not lend themselves readily to statistical measurement. However, to quote from a few that do: Although training only half as many new employees as in 1946, two departments in the bag division realized in 1947 the equivalent of an extra day's production with no additional labor expense through a 26% reduction in the time required to train newcomers to production efficiency. Despite a substantial wage increase, these same two departments, by a reduction in 1947 of 29% in the per capita cost of training for beginning jobs netted a savings equivalent to 80% of the salaries of the training department. Through trade extension classes additional valuable skills have been developed at comparatively low cost. For example, with the existing arrangements with the vocational school, the company's share of the cost of training twenty-seven men to read blueprints was $60—an average of $2.22 per man. This should be a good investment, both from an industrial relations and from an economic viewpoint.

As evidence of some results that cannot be measured in dollars and cents, top supervision is insistent on the improvement and further development of certain phases of training, and more and more supervisors and other employees are asking for training assistance.

No one has been deluded into thinking that the results enumerated above have come from training alone. Improved employee selection and placement, the normal acquiring of job experience, new machines and methods, economic pressure— all these and other factors have had their effect. But it stands to reason that, without an organized system of training, the results of these other factors would not have been so quickly or so completely obtained.

Summary

To summarize, Union Bag's Savannah training program is a coordinated attempt to attain the full potentialities of training as an effective industrial tool. Admittedly in the formative stages with much remaining to be done, it nevertheless has shown some gratifying progress in the development of intelligence and skills through job, trade extension, and supervisory training.

There is the awareness that training itself is not a panacea, but there is also the belief that it can make tremendous contributions to the solution, so important to employer and employee alike, of many of the economic and human relations problems of industry and its personnel. Being emphasized more strongly today than perhaps ever before is the fact that man's security and happiness—and indeed his very existence—depends in large measure upon the intelligence and efficiency of his work. And the objective of the Savannah training program is the fuller development of this intelligence and efficiency.

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

George J. Cooper, Maintenance Engineer, Ecusta Paper Corp., Pisgah Forest, North Carolina. Attended Illinois Institute of Technology and Duke University.

Maynard J. Cusack, Manager, Riegel Paper Company, Chicago, Illinois.

Products from Pulp and Pulpwood on Pacific Coast*

By H. K. Benson[1]

Abstract

In the manufacture of chemical pulp from hemlock and spruce wood on the Pacific Coast a number of secondary and derived products, such as lignin and alcohol, have been obtained during the past decade and are now in various stages of development and production. In the preparation of wood for pulping and allied processes a number of bark products are being produced on a commercial scale and are being used in plywood glues, and for crop dusting and soil mulching. Still other potential products are under consideration and the subject of research at a number of points.

In the manufacture of chemical pulp from hemlock and spruce wood on the Pacific Coast a number of secondary and derived products have been obtained during the past decade and are now in various stages of development and production. Still other potential products are under consideration and the subject of research at a number of points. It is the intention of this paper to discuss in part the products manufactured in the past; those contemplated by construction now under way; and those that research points toward production in the future.

The chief factor in the development of chemical and other products from pulp manufacture has been the prevention and avoidance of pollution of waterways by the waste liquor of the sulphite process of pulping. In the localities of the pulp mills are extensive shell fish plantings and other fisheries products. This has resulted in litigation for alleged damage to oysters and to the run of salmon toward their spawning grounds. It has also resulted in control of pollution by legislative regulations and the setting up of standards for the waters into which pulp mill wastes are discharged.

* Presented at the meeting of the TAPPI Chemical Products Committee held in Asheville, N. C., Oct. 10, 1947.

[1] Member TAPPI; University of Washington, Seattle, Wash.

Products from Waste Liquor

From 1935 to 1942, Rayonier, Incorporated, has engaged in the manufacture of Raylig, the trade name given to the total solids obtained by spray drying calcium base waste liquor. This product was produced in commercial tonnage more or less intermittently and was sold to users in the United States for the manufacture of linoleum cements and other adhesives, and to some extent for soil stabilization in the construction of subbases for highways and the runways of air fields. When protected by waterproof black top surfaces it yielded a compact and satisfactory sub-base for such structures. Various concentrations of the liquid waste were also marketed for dust prevention of roads and for other uses.

Because of pulpwood shortage during the war years, the Rayonier mill at Shelton was not in operation, but in 1945 its operation was resumed utilizing ammonia base cooking acid in place of calcium base. The resultant ammonia base waste liquor is evaporated to about 40% solids by means of the heat from the combustion of its solids in a parellel flow continuous evaporator. The gases of combusition are discharged through a 300-foot stack on an elevation near the plant. This method of disposal has prevented pollution of the adjacent waters and has not given rise to any atmospheric pollution of consequence.

Construction is now under way for the production of an evaporated liquor in vacuum evaporators for commercial marketing. This process will be in operation before the end of 1948. It will produce a liquid of 40 to 50% solids that will serve the same general uses as the calcium base liquor above noted. It differs chemically from the calcium base liquor in having a

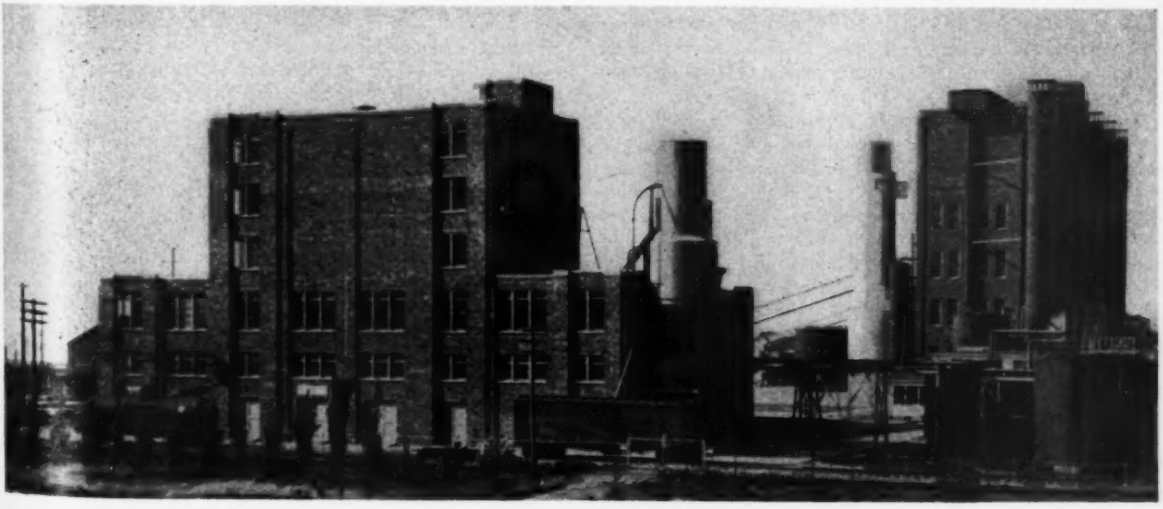

FIG. 1
Alcohol plant with pulp mill in background

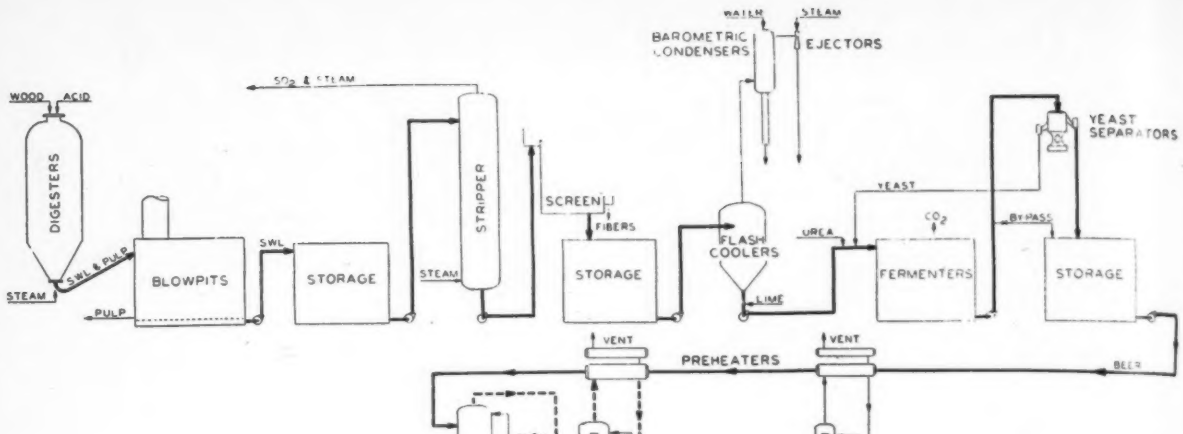

FIG. 2

Flow sheet for the manufacture of alcohol from waste liquor at Bellingham, Washington

nitrogen content in place of calcium which may lead to additional new uses. It is obvious that disposal by complete evaporation of ammonia waste liquor no longer presents any pollutional problem.

Another chemical product now manufactured on the Pacific Coast is ethanol, or ethyl alcohol. It is produced by the Puget Sound Pulp and Timber Company at Bellingham, Washington. This company also defended itself successfully in 1941 in litigations for alleged damage to oyster beds located in Padilla Bay of Puget Sound, some 16 miles distant from the mill. In the midst of the war years with an insistent demand for alcohol for use in the rubber program, arrangements with the Defense Plant Corporation were made for the construction of a plant (Fig. 1) to utilize the carbohydrates of calcium base waste liquor for fermentation into 190 proof alcohol and its allocation to butadiene plants. Since the war, the plant has been purchased from the War Assets Corporation and its product goes into peacetime uses as industrial alcohol. The capacity of the alcohol plant is in excess of 2,000,000 gallons per year.

In addition to the obvious byproducts of ethyl alcohol manufacture such as methyl alcohol, acetone, and aldehydes, there is also a large tonnage of calcium lignin sulphonate contained in the effluent of the alcohol plant. Construction is now under way at Bellingham for the production of calcium base sulphite waste liquor in the form of concentrated liquid and of dried solids at the rate of 20 tons per day of dry solids. The effluent from the alcohol plant will be concentrated in vacuum evaporators to a total solids concentration of 45 to 50% and then be spray dried. Production will be started in the early part of 1948.

The process *(1)* used at Bellingham involves first the steamstripping of the waste liquor from the pulp mill to remove free and loosely combined SO_2, which is returned to the pulp mill for reuse in the preparation of the cooking acid. It is next subjected to temperature and pH adjustments, with addition of nutrients, and fermented to alcohol. The resultant beer is passed through centrifuges for the separation of yeast for reuse and then refined in the usual manner. Figure 2 is a flowsheet of the process used in the Bellingham plant.

Although this treatment does not completely utilize the organic matter of waste liquor, it does reduce the pollutional effect of the effluent by more than one-half and, through removal of carbohydrates, it greatly minimizes the effect on dissolved oxygen in the waters into which it is discharged. As already noted, the evaporation of the final effluent may lead to total utilization of the waste liquor.

An interesting development is under way at Anacortes, Washington, where the Coos Bay Pulp and Paper Company, Anacortes Division, has contracted to sell its total output of waste liquor to another corporation, Berger-Krueger, Incorporated, for manufacture of a number of products from the waste liquor in a plant which is now being designed and which later is proposed to operate on a site adjacent to the pulp mill. The general nature of the proposed scheme of utilization is indicated in the flowsheet (Fig. 3). The process is expected to yield SO_2 for reuse in cooking acid; solid residues for use as fuel and as fertilizer, or land dressing; and a sugar solution for the production of yeast for use in protein and vitamin enrichment of stock foods.

The production of 6,000,000 gallons of alcohol per year is contemplated in another plant constructed by the Defense Plant Corporation at Springfield, Oregon. It has just recently been completed and initial operation undertaken by the Willamette Wood Chemical Company.

In this plant a wood hydrolysis process developed in the U. S. Forest Products Laboratory will convert the carbohydrate portion of sawdust into soluble sugars which will be fermented into ethyl alcohol. A solid finely divided lignin residue is obtained, suitable for fuel or lignin derivatives.

The introduction of magnesium base cooking by the Weyerhaeuser Timber Company at Longview, Wash-

ington, is another great step in the reduction of pollution in the rivers of the adjacent regions. Although this method utilizes its products in the process it is a striking evidence of what research has accomplished in making a process self-contained. In this process, magnesium oxide reacts with SO_2 and water to form magnesium bisulphite, the cooking agent. The magnesium base waste liquor is concentrated by evaporation and calcined in furnaces to yield SO_2, magnesium oxide, and large quantities of heat from the combustion of sugars, lignin, and other organic matter in the waste liquor. The process thus reclaims its own sulphur and magnesia and also produces heat for process steam for other parts of the plant.

Products from Bark

Changes in methods of handling pulpwood have also contributed to new and potential products. Hydraulic barking of pulpwood has made the use of bark available for new products. Considerable interest in the production of tannin from hemlock bark has been evidenced in small pilot plants and other larger scale tests. However, since many of the pulpwood logs are floated in salt water, the extraction of tannin has met with difficulties and no production has been reported.

The Weyerhaeuser Company, however, has recently announced *(2)* the production of five new products from Douglas fir bark, representing 12% of the saw log and hitherto only of limited value as fuel. These products are marketed under the trade name of Silvacon and are manufactured in a plant at Longview, Washington, to the extent of 75,000 pounds daily. By a series of grinding and screening steps, the bark is disintegrated into five products as follows:

Silvacon 383—flaky cork particles
Silvacon 508—short stiff fibers
Silvacon 490—amorphous tissue powder
Silvacon 412—cork fiber (25% cork, 75% lignified fibers)
Silvacon 472—cork fiber powder (20% cork, 40% lignified fibers, and 40% parenchymous powder)

The last product, which represents 45% of the plant's output, has found application in plywood glues. It acts as an extender of phenolic resin and protein adhesives, and an active ingredient in thermosetting molding. Thus it is integrated with the same plywood mills from which the peeler bark originates. It has had commercial application as an ingredient in match-igniting compounds and experimentally it promises further use in crop dusting compounds, in foundry core binders, linoleum cements, and other similar products. The second component of fir bark, comprising about 1/5 of the plant's output, is the cork itself, known as Silvacon 383. It is obtained in particles up to ¼ inch and is as water repellant as commercial cork. It contains chemically active groups of a phenoliclike character and has been sucessfully used in the smoke curing of meats and in phenolic resin manufacture.

The author has used a number of these bark products for seed bed mulching and as a soil conditioner with excellent results. Although the pH of the water extracts is from 3.6 to 4.0, it seems to stimulate germination and to protect seedlings from insect and fungus attack.

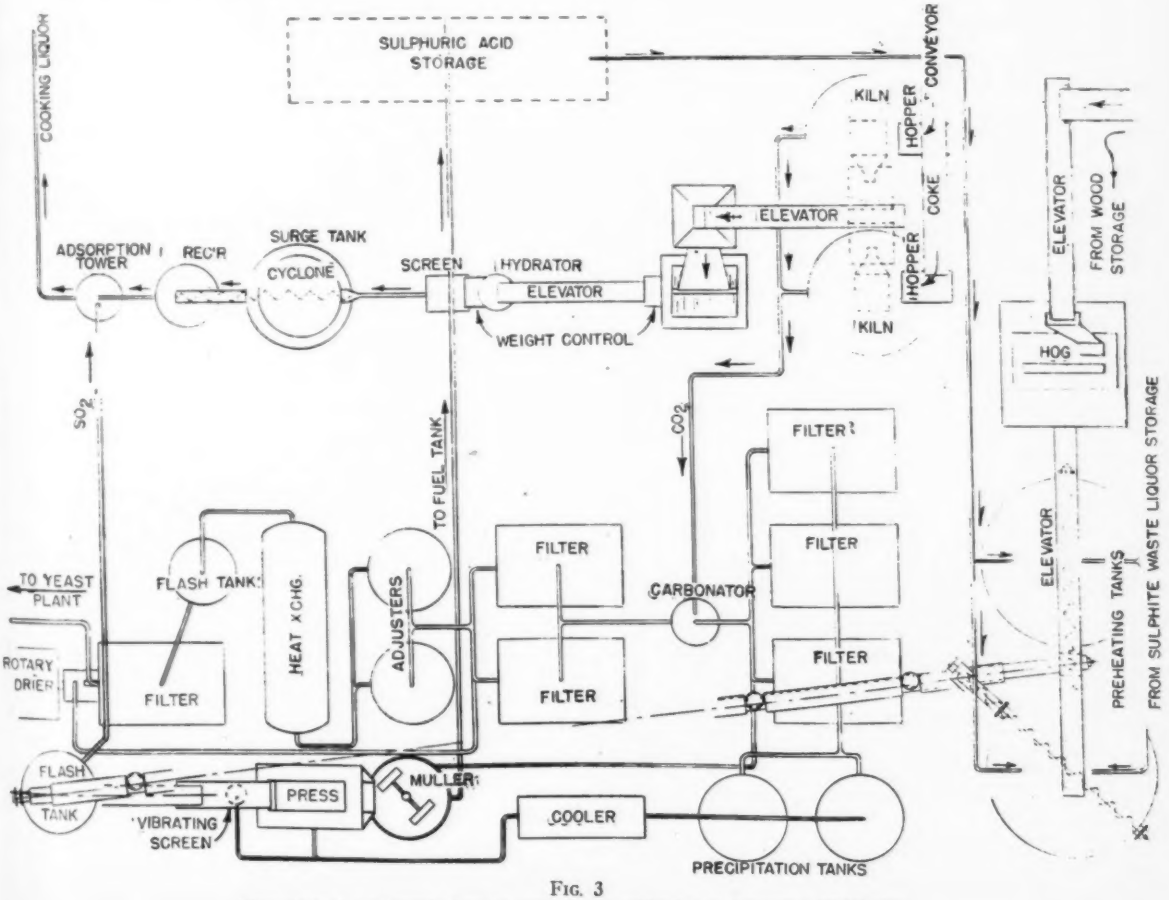

FIG. 3
Flow sheet of a proposed plant for waste liquor utilization at Anacortes, Washington

The pioneer work done by the Pacific Lumber Company of Scotia, California, on redwood bark in the production of its Palco products is well known to the industry. These operations* are carried out in Scotia, California.

After removal of the bark from the log, it is run through a hammer mill shredder to make possible the ultimate separation of the bark into two approximately equal portions: (a) bark fibers and (b) bark dust. The bark fibers which exist in the bark as long straight structures acquire a corkscrew shape after separation and further loss of moisture. This peculiar structure of the redwood bark fiber bestows upon it the unusual ability to felt. About 50% of the bark by this method of separation consists of such felting fibers. Fifty per cent of bark is obtained as a dust. It is made up of broken fibers, cork cells, the powdered walls of parenchyma cells, sieve cells, and cell contents.

The uses of bark fiber are based upon its felting capacity, as for textiles, oil fiters, mattresses, battery separators, and the like. The uses of the dust in contrast to the fiber are based on chemical and colloidal properties rather than physical factors. Here the chief consideration is the bark acid which seems to be similar to humic acid and makes it useful as a soil mulch conditioner.

The commercial products from redwood bark consist of Palco Wool, a loose fill insulation material for walls and ceilings, construction food lockers, and for use in temperature control. Another product is an especially refined bark fiber known as Fiber A. Its chief uses are as an insulating medium for electric hot water heaters, as an oil filter pack, and as a special battery separator.

In the manufacture of these fibrous materials, a composite residual product known as Palco Mulch is produced which seems especially adaptable for acid loving plants and in the treating of alkaline soils.

Future Research

There are other potential chemical products from the wood using industries of the Pacific Coast and considerable research and development work has been undertaken. At the first meeting of the Western Regional Sub-Committee of the TAPPI Chemical Products Committee, the scope of interest in manufactured and potential products was listed as follows:

1. Tall oil from Douglas fir sulphate pulp
2. Extractives of pulp species
3. The carbohydrate fraction in alkaline pulping
4. The carbohydrate fraction in sulphite pulping
5. Alcohols from sulphite carbohydrates
6. Yeast from sulphite carbohydrates
7. Butyric acid from sulphite carbohydrates
8. Complete precipitation of alkaline lignin
9. Sulphite lignin studies
   a. separation as lignin sulphonic acids
   b. desulfonation of lignin sulphonic acids
   c. condensed lignin compounds
   d. derivaties of lignin: nitro, chloro, thio
   e. catalytic cracking of lignin compounds
   f. oxidation products of lignin
10. Products from nitric acid pulping
11. Products from semipulping and defibering
12. Tannin extract from pulpwood bark
13. Tannin extract from alkaline and sulphite pulping
14. Volatile oils from alkaline pulping of Douglas fir
15. Pretreatment of Douglas fir to yield terpenes and resins

In connection with this listing of actual and potential products from pulping and allied processes, attention should be called to certain trends and practices. One of these is the use of resinous Douglas fir for sulphate pulp, in place of hemlock and spruce. In those mills using Douglas fir the recovery of resinous products should be of interest. Plywood and insulating board mills generally soften wood by steaming and this extract contains a number of products such as reducing sugars, furfural, and other soluble organic compounds. The scarcity of vegetable tanning agents previously used should divert interest into their production from wood extracts. Prehydrolysis of wood in experimental studies indicates a higher yield of carbohydrates in the extract than in sulphite waste liquor.

Similar studies of the pulping of hemlock and Douglas fir with nitric acid have indicated the production of a high grade pulp and the recovery of formic, acetic, and oxalic acids along with the spent nitric acid.

By selection of fermenting organisms, other products than alcohol such as butyric acid and yeast, may be obtained from sulphite waste liquor and from this source also there may be derived a number of lignin products as well. Lignin sulphonic acids offer interesting possibilities for detergent and water softening uses; or as the starting material by desulphonation for lignin itself; or for condensed lignin compounds with base exchange properties; or for such derivatives as nitro, chloro, and thiolignin; or for activated carbon and for use in rubber compounding.

In summarizing, ethyl alcohol is now produced at the rate of 2,000,000 gallons per year from sulphite waste liquor. Before the end of the present year, both ammonia and calcium base waste liquor will be processed for sale as concentrated liquid or as spray dried solids. Development work is under way for the use of waste liquor for fuel, for land dressings, and for yeast production. The fractionation of Douglas fir bark into cork, ligneous fibers, and powder has attained operation in a commercial scale plant. Similar products are obtained also from redwood bark in California.

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1. *Chem. Eng. Progress* 43, No. 4, 165-67 (1947).
2. *Chem. Engr.* 54, 159 (1947).

* For more details see Research Bulletin, Institute of Paper Chemistry, December, 1945.

Kalamazoo to Discuss Printing

The TAPPI Kalamazoo Valley Section will meet at the Columbia Hotel, Kalamazoo, Mich., on Thursday, April 1, 1948, at 6:30 p.m. This will be the annual Printing Meeting of the Section. W. K. Kidder of the St. Regis Paper Company will be program chairman and has announced the following speakers: Cecil Jourdan, vice president of Evans-Winter-Hebb Company will discuss "Letter Press Printing"; Elmer F. Wagner, President of the Federal Lithograph Company, will discuss "Offset Printing" and C. E. Munz, Vice President of the Central Ohio Paper Company, will talk on "Paper Merchandising as Regards the Graphic Arts Industry."

Wang Heads Industrial Cellulose Research

The Research and Technical Service Laboratories formerly operated by the Canadian International Paper Company is now operated by Industrial Cellulose Research, Ltd., Hawkesbury, Ont. Sigmund Wang is President and Manager.

Pilot Plant Study of a Multiclone Unit Operating on Stack Gases from a Lime Kiln*

By T. T. Collins, Jr.[1]

Abstract

A discussion is given of a dust removal unit operating on the gases from a lime kiln and a description of the method for calculating the efficiency of a Multiclone unit is described. On the basis of the tests a full scale unit is being installed.

The recovery of dust from the stack gases of the rotary lime kilns in alkaline pulp mills has not always offered great economic or technical advantages but, in many cases, has been of importance merely for the elimination of a somewhat serious nuisance. For the latter reason alone, the good will engendered in the community around a mill by the installation of suitable equipment for dust removal compensates for the low value of the reclaimed chemicals. In addition, mills which do not pass their dirty gases out of a high stack have also found it necessary to keep the dust out of electrical motors, etc., around the plant by cleaning the gases.

The amount of information available regarding the equipment in use in mills for recovering the lime dust in the exhaust gases from the kilns is meager and, since the dust has such a large particle size that is easily removed by simple scrubbers or stack sprays, the problem has not received very much publicity.

Dust Collection Units

A year ago, at the autumn TAPPI meeting in New Orleans, a paper given by Porter, Bishop and Liskow *(1)* described the application of a Type N. Roto-clone on lime kiln stack gases. These investigators found the efficiency of dust removal by this unit to be 96 to 99% and that it reduced the lime consumption of the mill from 156 to 15 pounds of new lime per ton of pulp, together with a saving of a large quantity of soda normally lost in the gases with the dust. At the same time, J. N. Schwartz described a scrubber on an Allis-Chalmers kiln as being 80% efficient. A discussion also was given concerning Thermix dry cyclone units which were said to have an efficiency of dust removal of over 90% in one lime kiln installation but the equipment was described as being troublesome to operate due to its plugging with the dust.

A description of a Multiclone installation operating on a rotary kiln burning limestone has been given by Mocine *(2)*. This unit had an estimated collection efficiency of 95% on a dust, 85% of whose particles by weight passed a 325-mesh screen.

Other methods of reducing lime dust losses have been successful. In one mill, merely by reducing the air leakage into the lime reburning system, the stack loss of lime was reduced from 45 to 15 pounds and the salt cake loss from 5 to 3 pounds per ton of pulp. Use of a cyclone spray tower or simple stack sprays further reduced this loss to approximately 2 pounds each of lime and salt cake per ton of pulp. In order to give a general idea of the particle size of the dust in the lime kiln stack gases, a microscopic determination of the particle size distribution of the sample of lime dust collected in a Southern mill has been made. The data are given in Table I.

This shows that approximately 95% by weight of the lime kiln dust is that mill has a particle diameter of between 5 and 25 microns.

When Thilmany considered the possible methods for reducing the amount of lime dust being lost in the exit gases from the kiln, methods such as scrubbing which would cool the gases had to be eliminated. The reason for this was that it is anticipated that the sensible heat in the gases leaving the lime kiln will be needed to raise the temperature of the saturated exit gases from the Venturi-Scrubber on the recovery furnace above the dewpoint so that condensation will not occur in the pulp mill stack during cold weather. It was calculated from the volume and temperature of the lime kiln gases that there is sufficient heat to raise the scrubber gases to 20 to 30°F. above the saturation temperature when the two gases are mived in the stack. The necessity of trying to use a dry dust collector, such as a Multiclone unit, became more apparent when the costs and difficulties of installing and operating an electrostatic precipitator or a bag filter were considered for this application. Also, other important factors in the decision were that no substantial economic return or pressure to eliminate a public nuisance were involved and, for that reason, it

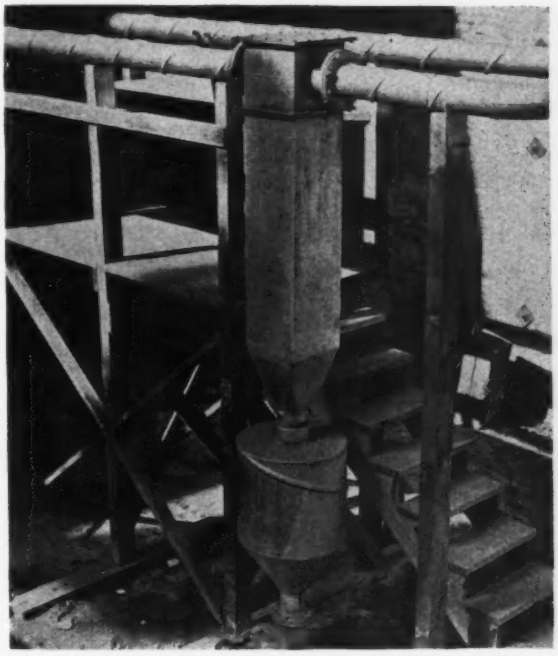

FIG. 1
Multiclone Test Unit

* Presented at the meeting of the Alkaline Pulping Committee of the Technical Association of the Pulp and Paper Industry held at Asheville, N. C., Oct. 10, 1947.

[1] Member TAPPI; Thilmany Pulp & Paper Co., Kaukauna, Wis.

was not necessary to clean the gas too thoroughly or at all.

In order to determine the approximate dust removal efficiency of a Multiclone unit operating on the lime kiln stack gases, plans and instructions *(3)* for setting up and operating a test unit were secured from Western Precipitation Corporation. Figure 1 shows the installation consisting of an intake elbow pointing upstream in the lime kiln duct, a fan, and an individual 9VG12 Multiclone unit in a suitable housing with a hopper for dust collection on the bottom. The ducts before and after the unit were properly fitted with connections for sampling the gases.

Efficiency Determinations

Determination of the dust removal efficiency of the Multiclone was carried out by sampling the gases before and after the unit and this was assumed to be as accurate as weighing the dust caught in the hopper and catching the dust in the exit gas in a bag filter. The method of sampling utnilizing the so-called "balanced" sampling tube and "wet collection" of the dust has been described by Collins *(4)* and simultaneous samples were taken before and after the Multiclone.

In order to determine the calcium content of the dust collected in the sampling apparatus, the sampling tube, condenser, hoses, bottles, and fume catcher were washed with hot, dilute hydrochloric acid to dissolve the dust. An aliquot sample of this acid solution was heated to boiling to drive off any carbon dioxide and the solution was then made ammoniacal to precipitate iron and aluminum. This solution was evaporated to part volume, filtered, and made up to the original volume with distilled water.

The calcium was determined by precipitation as the oxalate and ignition to calcium oxide or by titration of acidified precipitate solution with potassium permanganate.

The sodium content of the acid solution of calcium salts was determined by the method described by Collins *(4)*.

Comparison of wet bulb temperatures of the stack gas calculated from condensate volumes in the sampling apparatus with actual measurements indicate that the solubility of the lime dust in the water in the thermometer cup and on the wick is not high enough to raise the measured wet bulb temperature more than a degree or two above the calculated value. In the case of soluble fume, like that from a sulphate recovery unit, the error in wet bulb temperature measurement has been found to be considerable.

In order to calculate the specific gravity relative to dry air of the lime kiln gases, an Orsat analysis was made and humidity measurements were taken. Substitution of this value plus the absolute duct pressure, draft loss across the Multiclone, and temperature of the gases in the general equation for the 9VG12 unit allowed the volume of gas passing through the apparatus to be calculated.

TABLE I.—PARTICLE SIZE, COUNT, AND CALCULATIONS FOR LIME DUST * IN STACK GASES FROM A ROTARY KILN

Size, microns	Count	Diameter[a]	Dia.[3] × Count	Weight Percentages Group	Weight Percentages Cumulative
0.5	66	0.125	8	0.015	0.015
1	73	1	73	0.125	0.140
2	39	8	312	0.54	0.68
3	15	27	405	0.70	1.38
4	8	64	512	0.88	2.26
5	4	125	500	0.86	3.12
6	3	216	648	1.12	4.24
7-8	6	422	2532	4.3	8.54
9-10	4	855	3420	5.9	14.5
11-15	8	1960	15680	26.9	41.3
16-20	2	5200	11400	19.7	61.0
21-25	2	11300	22600	38.8	99.8
	230		58090	99.8	99.8

* Count made by Arthur D. Little, Inc.

TABLE II.—DATA ON 9VG12 MULTICLONE TEST UNIT OPERATING ON LIME KILN STACK GAS

Test	Average Gas Temperatures,[a] °F. DB	WB	WB [b]	Differential Across Test Unit, inches w.g.	Volume of Gas, cfm. at test cond.	Efficiency of Calcium Removal, %	Calculated Dust Loadings of Gas Entering Multiclone, grains/cu. ft. at duct cond. $CaCO_3$	Na_2SO_4
1	386	158	160	2.9	653	70	2.35	0.20
2	345	163	164	1.4	514	71	4.47	0.19
3	419	170	168	2.1	569	70	4.01	0.52
4	427	166	164	2.8	654	78	4.87	0.40

[a] Average of values measured at inlet and outlet of test unit.
[b] Calculated from volume of condensate in sampling apparatus.

These results indicate the efficiency of a full-scale Multiclone unit operating on the lime kiln stack gases at the Thilmany mill will probably range from 70 to 80%. The stack gases leaving the kiln dust chamber (this chamber has sprays in the bottom which cool the gas slightly) have a temperature of about 525°F. and amount to 10,000 to 12,000 c.f.m. for 140 tons pulp production. It is estimated that about 79 pounds of lime dust per ton of pulp are lost in the stack gases and that installation of a full-scale Multiclone operating at 70% efficiency should reduce the total lime going out the stack from 11,000 to approximately 3,000 pounds per day. The amount of salt cake saved by reclaiming this lime dust will probably amount to 5 pounds per ton of pulp. The value of the potentially recoverable salt cake is just barely sufficient to pay for operation of the fan and installation of the Multiclone. It is difficult to estimate the value of the lime recovered as it has a causticity of only 11%, which means it must be reburned in the kiln before use. However, a slight saving is expected to result from its reuse.

Although the Multiclone test unit was not operated over an extended period of time, it was run for several days and started cold several times. No appreciable deposit of lime dust was found on the vanes and the tubes although some dust was deposited in the duct ahead of and behind the test unit. It is believed that the gas velocity through the duct and the Multiclone was sufficient to prevent much settling of the lime dust.

The difficulties in handling lime dust indicate that units of this type for this application should be provided with holes for lancing the tubes, and should be insulated. Some provision may also have to be made for returning the dust collected to the sludge system as a slurry. However, these operational difficulties can better be observed on a large installation than on a single test unit after the full-scale Multiclone unit now being installed at Thilmany has been operated for some time.

Apparently, the only advantage that a Multiclone offers for the application discussed, is that the stack gases are not cooled and saturated as they would be by efficient stack sprays or a simple type of cyclone scrubber. The anticipated need of the sensible heat from the lime kiln gases to raise the temperature of the scrubbed recovery furnace gases enough to prevent condensation in the stack justifies the installation of the unit in this particular instance.

Acknowledgment

The author wishes to acknowledge the help of M. G. Schmitt in this investigation.

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